DRAFT

SOCIO-ECONOMIC BASE CASE FOR THE

SOUTHERN ROCKY MOUNTAIN MANAGEMENT PLAN (SRMMP)

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DRAFT FOR DISCUSSION PURPOSES

September 17, 2002

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1. INTRODUCTION AND GEOGRAPHIC SETTING

1.1. INTRODUCTION

In November, 2001, the Province decided to rescind the Order in Council establishing the former the Southern Rocky Mountain Conservation Area. Government also established the Southern Rocky Mountain Management Plan (SRMMP) to make recommendations regarding Crown land use and management for the area defined roughly by the boundaries of the rescinded Conservation Area. As part of the planning process, a socio-economic "base case" (which includes the management direction contained in the Kootenay Boundary Land Use Plan or KBLUP Implementation Strategy) is required to document current socio-economic conditions and anticipated trends in the short and long term that are expected to occur in the absence of the SRMMP. This report and a similar analysis being undertaken for environmental values, will serve as benchmarks for the evaluation of possible land use changes considered by the SRMMP. The base case research is directed by the SRMMP Project Team, a group of planners with the Ministry of Sustainable Resource Management.

An attempt has been made to keep the base case report very concise, and to focus on historical and anticipated trends in those sectors that could be most directly affected by changes in land and resource management. It is important to recognize that the Plan Area economy is influenced by a number of factors other than land use, such as other government policies and regulations and international commodity markets. The Treaty process is also part of the base case, and the SRMMP is without prejudice to this process.

This report provides a socio-economic overview at the Plan Area level, reflecting the regional and strategic nature of the planning exercise, as well as data limitations. These factors limit the extent of socio-economic analysis for specific communities. It is also important to understand that the purpose of the SRMMP is to refine and clarify existing direction from the KBLUP Implementation Strategy and Higher Level Plan. There will be no new protected areas, and therefore, the impacts of the Plan will be much more incremental in nature than the original KBLUP.

Anticipated future trends can be quantified for population and for some resources (e.g. timber harvest levels). However, trends for most sectors, and the overall economic structure must be more qualitative in nature, based on historical trends, existing reports, input from the Project Team and study team experience. Key data sources for this profile include:

- data, studies and comments provided by the Project Team, including Geographic Information System (GIS) data and the SRMMP *Background Report*[1];
- socio-economic analyses for the Cranbrook TSA Timber Supply Reviews;
- economic dependency estimates, population and other data from BC STATS;

[1] *Southern Rocky Mountain Management Plan Background Report*, SRMMP Project Team, March 7, 2002.

- Statistics Canada Census data.

The research for this project was conducted in March 2002. Gary Holman was the project leader and the key consultant for the socio-economic profile of the SRMMP and First Nations communities, and the tourism, recreation, agriculture and trapping sectors. Pierce Lefebvre Consulting prepared the sections on forestry, mining and energy.

1.2. GEOGRAPHIC SETTING[2]

The Plan Area covers the southeast portion of the East Kootenays and extends from the B.C./Montana border north through the Flathead and Wigwam watersheds and portions of the Elk and Bull River watersheds, to the southern boundary of Height of the Rockies Provincial Park. All federal lands, private lands, and Provincial Parks are excluded from the Plan Area.

For socio-economic and environmental evaluation purposes, a larger Resource Evaluation Area is also considered in this report. This Resource Evaluation Area includes the Plan Area, as well as the remainder of the Elk and Bull River watersheds (see attached map). The Resource Evaluation Area covers about one half of the Cranbrook Forest District and encompasses 16 landscape units.

Table 1: Southern Rocky Mountain Management Plan Area Summary

	Total Area (ha)	THLB Area (ha)	Private / Federal Lands (ha)
Resource Evaluation Area[a]	754,463	114,593	149,679
Management Plan Area[b]	440,614	78,179	68,386

Source: Cranbrook Forest District PCRS Reports by Landscape Unit.
(a) Resource Evaluation Area: LU 14-28, 38, + planning cells T490, T555, T560 in LU 13 and 34.
(b) Plan Area: LU 14-18, 23-26, 27 east of Bull River + planning cells T490, T555, T560 in LU 13 and 34.

The Elk Valley communities of Fernie, Sparwood and Elkford lie within the boundaries of the Resource Evaluation Area, as well as a number of small, unincorporated communities, including Hosmer, Corbin, Cokato, and Natal. The small communities of Elko, Galloway, Grasmere, Caithness and Roosville (the nearest border crossing) lie just outside of the Resource Evaluation Area. The Tobacco Plains Reserve, located on the Canada – US border between Highway 93 and Lake Koocanusa, is the nearest First Nations community to the Resource Evaluation Area. Data on the population and economic structure of the main communities in the Resource Evaluation Area is provided in sections 2 and 3 below.

Highways 3 and 43, and the Canadian Pacific Railway (CPR) form the main transportation corridors running through the Plan Area. Highway 3 and the CPR parallel the Elk River from Elko to Sparwood, where the rail line splits. At Sparwood, one line

[2] Since completion of the first draft of this document in June, 2002 two small areas, Wigwam Flats and Sheep Mountain (planning cells T490, T555 and T560), have been dropped from both the Plan Area and the Resource Evaluation Area. This change is not reflected in this document.

runs north to Elkford, and the Fording River, Line Creek and Greenhills coal mines, and the other rail line travels southeast paralleling Highway 3 through the Crowsnest Pass, Alberta. At Sparwood, Highway 43 begins and runs north to Elkford.

The closest commercial air services are available at Cranbrook and Calgary. There are recreational air services at the Elko airstrip and the Elk Valley Airport (8 km north of Sparwood), where small airplane and helicopter charter services are available. There is now a helicopter service available between Fernie and nearby centres such as Kimberley and Calgary. There are two passenger bus lines providing services to and from the Elk Valley. There is no passenger or freight service available by rail.

The Trans Canada natural gas pipeline enters the Plan Area north of Sheep Mountain, and continues north from the Wigwam River to Highway 3, then east through Phillips Pass into Alberta. Subsidiary lines provide service to Elko, Fernie, and Sparwood. The 500kV hydro transmission line passes through the Plan Area to the Sparwood sub-station from Elko, then through Phillips Pass into Alberta. Lower voltage lines distribute power from the Sparwood sub-station to the local communities. Other communication / utility lines such as telephone and hydro distribution, generally follow the transportation corridor. There are also a number of communication towers located throughout the Plan and Resource Evaluation Areas.

2. POPULATION

2.1. CURRENT POPULATION AND HISTORICAL TRENDS

The population of the Resource Evaluation Area, as estimated by the latest Census, is about 11,000 in 2001, which is somewhat less than the population of 13,000 in 1981.[3] This represents a negative growth rate averaging about –1.0% per year over the 1981-2001 period. Table 2 summarizes population data for selected communities within the Resource Evaluation Area over this period.

As Table 2 shows, population for each of the communities and the rural area (CSD A) within the Resource Evaluation Area has decreased over the 1981-2001 period. The main reason for this decline appears to be the reductions in the labour force in the coal mines in the area. For the East Kootenay Regional District as a whole, population did increase over this period, albeit at a relatively slow rate of 0.5% per year. Population data do not include temporary residents, for example in Fernie, at various times of the year.

There is no First Nations community in the Resource Evaluation Area, although there are some non-status aboriginals (i.e., living off-reserve). The nearest First Nations community is the Tobacco Plains band, located just west of the Resource Evaluation Area boundary, east of Lake Koocanusa, with a population of roughly 100.[4]

[3] The Resource Evaluation Area is defined as the communities of Fernie, Sparwood and Elkford, as well as Census Subdivision A (the rural portion). However, for purposes of other socio-economic data such as labour force, only the three communities in the Elk Valley are used. This excludes the rural portion of the Resource Evaluation Area (CSD A), because due to recent boundary changes for CSDs, socio-economic data are not available on a consistent basis over time.

[4] Pers. comm. with Rosemary Nicholas, Ktunaxa Tribal Council. Estimate excludes non-status First Nations.

Table 2: Population by Selected Communities Within the Resource Evaluation Area and East Kootenay Regional District (1981-2001)

	1981	1991	2001	Avg. Annual Growth Rate 1981-2001[b]
Elkford	3,225	2,924	2,589	-0.9%
Sparwood	4,270	4,326	3,812	-0.5%
Fernie	5,584	5,146	4,611	-0.8%
Census Subdivision A[a]	1,994	1,716	1,837	-0.4%
Resource Evaluation Area	15,073	14,112	12,849	-0.7%
Cranbrook	16,347	16,887	18,476	0.7%
Kimberley	7,547	6,689	6,484	-0.7%
East Kootenay Regional District	55,141	53,746	56,291	0.1%

Source: BC STATS, June, 2001 and 2001 Census.

(a) Census estimate available for CSD A, which is roughly consistent with Resource Evaluation Area boundary, only for 2001 and 1996 (1,790). Estimates for earlier years based on population trends in Census Subdivision C (now defined as CSD A and B) for which 1981-2001 data are available.

(b) Trends should be regarded with caution because of boundary adjustments in Fernie (expansion) and the redefinition of CSD C (equivalent to CSD A+B), after 1996.

2.2. ANTICIPATED POPULATION AND TRENDS

Forecasts by BC STATS indicate that population in the Resource Evaluation Area will grow slowly by about 0.7% per year until 2011, and then decline slowly thereafter. This compares to the growth rate projected for the East Kootenay Regional District as a whole of about 0.5% per year.[5] As occurred historically, most of the population increase throughout the Plan Area is expected to be due to in-migration.

BC STATS forecasts also indicate that population aging (i.e. the increasing number of elderly residents as a proportion of total population) is expected to continue in the Resource Evaluation Area, suggesting that retirement incomes in the Resource Evaluation Area will continue to grow as a proportion of total income. Increasing retirement incomes will continue to be a growth factor in the Resource Evaluation Area economy.

[5] Projections based on BC STATS population forecasts using the P.E.O.P.L.E. model by Local Health Area as of June, 2001.

3. ECONOMIC STRUCTURE

3.1. CURRENT ECONOMIC STRUCTURE AND HISTORICAL TRENDS

3.1.1. Labour Force

Census labour force data provide a good indication of longer term trends in the economic structure of Resource Evaluation Area communities. Table 3 presents labour force trends for the 1981-96 period for the three main communities within the Resource Evaluation Area: Fernie, Sparwood and Elkford. Labour force data from the 2001 Census survey will not be available until February, 2003.

These data include both employed and unemployed, and allocates the labour force participants to various industries on the basis of their primary activity. However, these data do not fully reflect the economic contribution of part-time activities (e.g. farming, trapping), or differences in unemployment and seasonality among various industries. ***Also note that labour force data are based on location of residence, not work location, i.e., the data will omit those who work within the Resource Evaluation Area but live outside the area. Conversely, it will include residents of the Resource Evaluation Area who work outside the area. Therefore, labour force trends can partly reflect movement of workers within, or in and out of the Resource Evaluation Area. Estimates of the employment and other economic impacts of resources within the Resource Evaluation Area (i.e., for resident and non-resident workers) are provided in section 4 below for various sectors.***

As shown in Table 3, the service sector in 1996 is a larger employer than the goods-producing sector within each of the communities in the Resource Evaluation Area, a reversal of the situation in 1981.[6] This does not reflect lower service sector wages, on average, than for goods-producing industries, and also the fact that some service industries are somewhat dependent on incomes generated by basic goods-producing sectors (see discussion of economic dependency estimates below).

Total labour force in the Resource Evaluation Area (Table 4) decreased from about 6,160 in 1981 to about 5,835 in 1996, an average annual decline of almost –0.4% per year over this period.[7] The total labour force in goods-producing industries decreased significantly in absolute terms and as a proportion of total labour force, from 58% to 42% over the 1981-1996 period. This was due mainly to reductions in mining, wood manufacturing,

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[6] For labour force data, the Resource Evaluation Area is estimated as the sum of the three incorporated communities (Fernie, Sparwood and Elkford). Labour force breakdowns for the rural portion of the Resource Evaluation Area (CSD A) are not yet available. Assuming a similar labour force / population ratio of about 50% as for CSD C, total labour force in 1996 CSD A is estimated at roughly 950. The labour force for the Tobacco Plains band, the nearest First Nations community to the Resource Evaluation Area, is estimated at roughly 50 in 1996.

[7] These are estimates of total labour force, including labour force not allocated to specific industries. Data in Table 2 exclude unallocated labour force.

and construction. Some goods-producing sectors, such as logging / forestry services and utilities, actually increased in absolute and proportional terms from 1981-1996.

Service sector employment increased significantly in absolute terms and proportionally, from 42% to 58%, from 1981 to 1996, especially in the accommodation and food industries, wholesale / retail trade, finance, real estate and other business services, the public sector and transportation and storage.[8] All of these sectors are strongly linked with population growth and aging, and increases in the tourism and knowledge-based industries, which are occurring in the Resource Evaluation Area and throughout B.C.

As shown in Figure 1 and Table 5, the absolute and proportional shift from goods to service industries is evident in all of the communities. Labour force trends for the rural area in and adjacent to the Resource Evaluation Area (i.e., Census Subdivision C) show a similar pattern. The data also shows that the service sector labour force grew strongly in absolute terms even though total goods-producing labour force declined significantly.

Table 3: Labour Force by Industry and Community in the Southern Rocky Mountain Resource Evaluation Area: 1996

Industry	Fernie	Sparwood	Elkford	Total Resource Evaluation Area
Agriculture	10 (0)	0 (0)	0 (0)	10 (0)
Fishing & Trapping	0 (0)	10 (1)	0 (0)	10 (0)
Forestry	115 (5)	130 (7)	0 (0)	245 (4)
Logging & Forestry	75 (3)	130 (7)	0 (0)	205 (4)
Wood Manufacturing	40 (2)	0 (0)	0 (0)	40 (1)
Paper & Allied	0 (0)	0 (0)	0 (0)	0 (0)
Mining & Energy	470 (19)	495 (28)	795 (53)	1760 (30)
Other Manufacturing	45 (2)	25 (1)	20 (1)	90 (2)
Construction	125 (5)	95 (5)	60 (4)	280 (5)
Utilities	15 (1)	10 (1)	0 (0)	25 (0)
TOTAL GOODS PRODUCING	780 (31)	765 (43)	875 (59)	2420 (42)
Transportation, Storage	70 (3)	125 (7)	10 (1)	205 (4)
Communications	15 (1)	10 (1)	10 (1)	35 (1)
Wholesale / Retail Trade	445 (18)	290 (16)	170 (11)	905 (16)
Accommodation & Food	280 (11)	155 (9)	90 (6)	525 (9)
Bus. / Pers. / Other Services	420 (17)	165 (9)	150 (10)	735 (17)
Fed. / Prov. Government	535 (21)	285 (16)	190 (13)	1010 (17)
TOTAL SERVICE PRODUCING	1765 (69)	1030 (57)	620 (41)	3415 (58)
TOTAL LABOUR FORCE	2545 (100)	1795 (100)	1495 (100)	5835 (100)

Note: Labour force includes employed and unemployed. The number in brackets indicates the % of total labour force for that area. Figures exclude unallocated labour force.

[8] The decline in communications appears to be due to declines in postal service and telephone systems, possibly due to rationalization and technological change in the delivery of such services.

Table 4: Labour Force by Industry and Community in the Southern Rocky Mountain Resource Evaluation Area: 1981

Industry	Fernie	Sparwood	Elkford	Total Resource Evaluation Area
Agriculture	10 (0)	0 (0)	5 (0)	15 (0)
Fishing & Trapping	5 (0)	0 (0)	0 (0)	5 (0)
Forestry	220 (9)	35 (2)	0 (0)	255 (4)
Logging & Forestry	50 (2)	20 (1)	0 (0)	70 (1)
Wood Manufacturing	170 (7)	15 (1)	0 (0)	185 (3)
Paper & Allied	0 (0)	0 (0)	0 (0)	0 (0)
Mining & Energy	590 (23)	870 (45)	1240 (73)	2700 (44)
Other Manufacturing	75 (3)	125 (7)	40 (2)	240 (4)
Construction	165 (7)	115 (6)	70 (4)	350 (6)
Utilities	15 (1)	0 (0)	0 (0)	15 (0)
TOTAL GOODS PRODUCING	1080 (43)	1145 (60)	1355 (80)	3580 (58)
Transportation, Storage	85 (3)	105 (6)	15 (1)	205 (3)
Communications	35 (1)	25 (1)	15 (1)	75 (1)
Wholesale / Retail Trade	395 (16)	180 (9)	55 (3)	630 (10)
Accommodation & Food	160 (6)	120 (6)	75 (4)	355 (6)
Bus. / Pers. / Other Services	270 (11)	145 (8)	55 (3)	470 (8)
Fed. / Prov. Government	515 (20)	205 (11)	125 (7)	845 (14)
TOTAL SERVICE PRODUCING	1460 (57)	780 (40)	340 (20)	2580 (42)
TOTAL LABOUR FORCE	2540 (100)	1925 (100)	1695 (100)	6160 (100)

Note: Labour force includes employed and unemployed. The number in brackets indicates the % of total labour force for that area. Figures exclude unallocated labour force.

Table 5: % Change In Labour Force By Industry and Community in the Southern Rocky Mountain Resource Evaluation Area: From 1981-1996

Industry	Fernie	Sparwood	Elkford	Total Resource Evaluation Area
Agriculture	0%	0%	-100%	-33%
Fishing & Trapping	-100%	(+10)	0%	100%
Forestry	-48%	271%	0%	-4%
Logging & Forestry	50%	550%	0%	193%
Wood Manufacturing	-77%	-100%	0%	-78%
Paper & Allied	0%	0%	0%	0%
Mining & Energy	-20%	-43%	-36%	-35%
Other Manufacturing	-40%	-80%	-59%	-63%
Construction	-24%	-17%	-14%	-20%
Utilities	0 %	(+10)	0%	67%
TOTAL GOODS PRODUCING	-28%	-33%	-35%	-28%
Transportation, Storage	-18%	19%	-33%	0%
Communications	-57%	-60%	-33%	-53%
Wholesale / Retail Trade	13%	61%	209%	44%
Accommodation & Food	75%	29%	20%	48%
Bus. / Pers. / Other Services	56%	14%	173%	56%
Fed. / Prov. Government	4%	39%	52%	20%
TOTAL SERVICE PRODUCING	21%	32%	82%	32%
TOTAL LABOUR FORCE	0%	-7%	-12%	-5%

Note: % estimates exclude reserves. For sectors with zero employment 1981 or 1996, the number inside the bracket means the absolute employment loss or gain over the period.

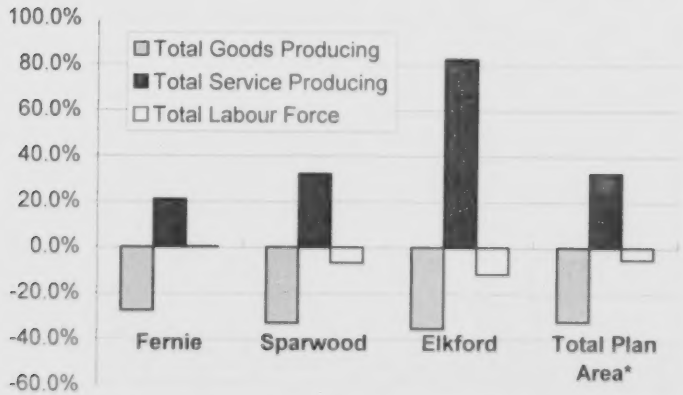

Figure 1 Percentage Change In Labour Force By Industry and Community in the Southern Rocky Mountain Resource Evaluation Area: 1981-1996

3.1.2. Economic Dependency

The Ministry of Finance and Corporate Relations (MFCR) has developed estimates of economic dependency for all regions in B.C., and a number of communities, using 1996 Census data. Economic dependency estimates show the relative importance of different sources of "basic" income, or income flowing into the study region from the outside, which are assumed to drive the local or regional economy. Basic industries include: (i) resource export industries such as forestry and mining, (ii) tourism and government sectors and (iii) sectors supplying industries (i) and (ii). Basic income includes wages and salaries earned in basic industries as well as non-employment sources of income from outside the region (e.g. pension and investment income, government transfer payments). Non-basic sectors are defined as those businesses (e.g. local grocery stores and other retail outlets) which serve local demand generated as a result of basic activities. ***As with labour force data, economic dependency estimates are based on residence not location of work, and do not fully reflect part-time activities or seasonality among various industries.***

Conventional labour force data do not systematically identify basic and non-basic sectors, nor do they identify tourism or non-employment sources of income (e.g. pensions and investment income). Therefore, labour force data do not provide as comprehensive an indication of the relative importance of various sources of livelihood as economic dependency estimates. Note that basic employment does not include the unemployed (unlike labour force which includes employed and unemployed), but does include employment in supplier industries. The economic dependency estimates consider government as a "basic" industry, not because it necessarily generates wealth, but because government spending and employment are determined by a number of factors external to the local economy.[9] Also, some components of government spending and transfers (e.g. social assistance) are inversely related to marginal changes in other basic sectors.

Economic dependency estimates for the three main communities within the Resource Evaluation Area are presented in Table 6 and Figures 2 and 3. Mining, forestry, the public sector and tourism were the largest sources of employment and employment income[10] in the Resource Evaluation Area in 1996. Some of the key findings from Table 6 are as follows:

- Mining is the single largest source of basic earned income (50%) and employment (48%) in the Resource Evaluation Area, followed by the public sector (17% of income and 22% of employment), and tourism (about 5% of income and 15% of employment), and forestry (about 4% of income and 7% of employment).

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[9] The weak linkage between employment *changes* in resource sectors such as forestry and the government sector is borne out by labour force trends over the 1981-96 period (see Tables 3, 4 and 5). This is not to say that resource sectors do not generate government revenue, but only that the linkage with government employment at the regional level is more indirect.

[10] Although income estimates in Table 6 are after tax, the relative importance of basic sectors would not differ significantly if before tax data were used.

- The differences between income and employment dependencies reflect differences in average wages in various sectors. For example, due to relatively low wages in tourism, this sector comprises a lower proportion of basic income than of employment.[11] Note that tourism, as defined by BC STATS, also includes business travel.
- Construction and other (i.e. miscellaneous) manufacturing and transportation industries together account for about 3% of basic income and 5% of employment in the Resource Evaluation Area.
- Pension, investment income and transfer payments together comprise almost 19% of basic income in the Resource Evaluation Area.

While mining is by far the predominant basic sector in all of the communities in the Resource Evaluation Area, the economic structure of these communities does vary considerably:

- The Elkford economy is almost totally dominated by mining (accounting for 80% of income), with the public sector being the next most important source of income (10%).
- Sparwood is the second most dependent economy on mining (45% of income), but other sectors such as the public sector, tourism and forestry provide a greater degree of diversification.
- The Fernie economy, while also dominated by mining, is more reliant on tourism (9% of income) than the other communities in the Resource Evaluation Area, primarily due to the ski facilities and related development located there. The public sector comprises 22% of employment in Fernie, the largest proportion in the Resource Evaluation Area.
- Data for the smaller, rural communities within the Resource Evaluation Area cannot be separated from data on rural communities just outside the Resource Evaluation Area. However, available data suggest that the rural areas are more dependent on forestry and agriculture than the three main communities.

The tourism and forestry industries in the rural areas and communities adjacent to the Resource Evaluation Area (e.g., Elko, Galloway and Cranbrook) also rely on the timber resources, the wilderness attributes and abundant wildlife populations of the Resource Evaluation Area. Economic dependency data for these areas indicates that they are also more dependent on forestry and agriculture than the three communities in the Elk Valley.

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[11] These estimates do not take into account the value of gratuities to tourism sector workers, although this would still not likely alter the basic conclusion that average wages in tourism are lower than for industries such as mining and forestry.

Table 6: Basic Sector Employment and Income in the Southern Rocky Mountain Resource Evaluation Area: (1996)

	Forestry	Mining / Energy	Fishing / Trapp.	Agric. / Food	Tourism	Public Sector	Constr.	Other[c]	ONEI[d]	TRAN[e]	Non-Basic	Total
EMPLOYMENT (# of workers)[a,b]												
Fernie	149 (7%)	672 (32%)	0 (0%)	11 (1%)	481 (23%)	567 (27%)	115 (6%)	77 (4%)			467	2,540 (100%)
Sparwood	166 (11)	675 (44)	10 (1)	0 (0)	220 (14)	293 (19)	81 (5)	90 (6)			254	1,790 (100)
Elkford	0 (0)	948 (79)	0 (0)	0 (0)	0 (0)	199 (17)	30 (3)	21 (2)			297	1,495 (100)
Total Resource Evaluation Area[f]	315 (7)	2,295 (48)	10 (0)	11 (0)	701 (15)	1,059 (22)	226 (5)	188 (4)			1,018	5,823 (100)
AFTER TAX INCOME ($millions)[a]												
Fernie	3.3 (7)	23.1 (35)	0.0 (0)	0.0 (0)	5.8 (9)	14.9 (22)	2.7 (4)	1.3 (2)	9.4 (14)	6.3 (9)	8.7	75.5
Sparwood	2.8 (5)	23.7 (45)	0.4 (1)	0.0 (0)	2.6 (5)	7.9 (15)	1.9 (4)	1.7 (3)	7.4 (14)	4.2 (8)	4.6	57.4
Elkford	0.0 (0)	36.1 (80)	0.0 (0)	0.0 (0)	0.0 (0)	4.7 (10)	0.5 (1)	0.1 (0)	2.4 (5)	1.4 (3)	4.7	49.9
Total Resource Evaluation Area[f]	6.1 (4)	82.9 (50)	0.4 (0)	0.0 (0)	8.4 (5)	27.5 (17)	5.1 (3)	3.1 (2)	19.2 (12)	11.9 (7)	18.0	182.8

Source: Ministry of Finance and Corporate Relations

Notes:

(a) "Primary" sectors (i.e. Forestry, Mining/Energy, Fishing/Trapp, Agric/Food) include primary processing. Percentages are of basic employment and income (i.e. of total minus non-basic).

(b) Includes direct employment plus indirect employment in related supplier industries (e.g. forestry includes primary processing)

(c) "Other" includes high tech industries, parts of manufacturing and transportation not already allocated to another basic industry, as well as rural services (i.e. service industries within regional centres that serve the surrounding rural areas).

(d) Primarily investment income and corporate pension plans.

(e) Transfer payments such as employment insurance, income assistance, old age security and Canada Pension payments.

(f) The Resource Evaluation Area is defined as the incorporated communities within the boundaries of the Resource Evaluation Area (i.e., excludes smaller, rural communities).

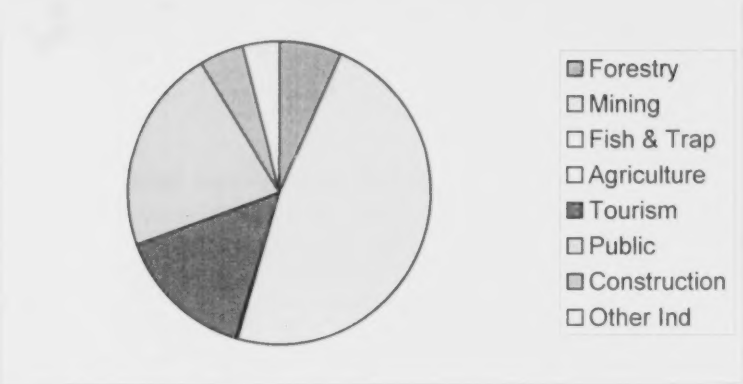
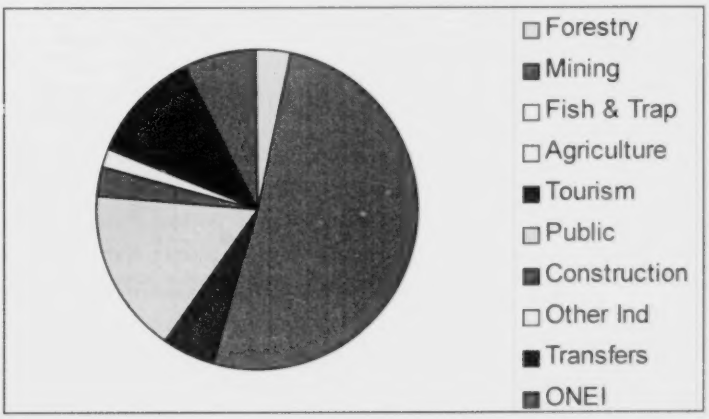


Figure 2: Employment Dependency in the Southern Rocky Mountain Resource Evaluation Area: (1996)

Figure 3: Income Dependency in the Southern Rocky Mountain Resource Evaluation Area: (1996)



3.2. MORE RECENT TRENDS IN ECONOMIC STRUCTURE

More recent trends for some of the key sectors in the Resource Evaluation Area economy are discussed in section 4 below, but a brief summary is outlined here. Information regarding population growth and more recent trends in the Resource Evaluation Area and in the broader East Kootenay region suggest that the economic structure reflected in 1996 labour force and economic dependency data are still generally valid today, although tourism has grown considerably and would comprise a much larger proportion of local income and employment. Based on the most recent Census data, population in the Resource Evaluation Area communities has continued to decline slightly over the 1996-2001 period.

As indicated in section 4.3 below, strong growth in the tourism sector has continued since 1996. More recent data on room revenue for the East Kootenay region, skier volumes and employment at Fernie Alpine Resort, visits to national and provincial parks, highway traffic counts, increased snowmobile use, and increased purchases of recreational property in or adjacent to the Resource Evaluation Area, all suggest continued growth in tourism and related service sectors. Recently completed investments in hotel and other tourism-related businesses (particularly in Fernie), but also in new commercial backcountry operations, also indicate continued strong growth in this sector. The amenities and lifestyle of the Resource Evaluation Area are becoming increasingly popular for buyers of recreation properties, especially Alberta residents. Recent building permit data for Fernie and to a lesser extent Sparwood, reflect strong construction activity in residential and commercial sectors. Tourism-related investments adjacent to the Resource Evaluation Area (e.g., Kimberley Alpine Resort), also have had spill-over impacts on the Resource Evaluation Area employment and the economy.

The recent downsizing in the provincial government has had only a minor offsetting effect in service sector employment, but these cutbacks have not yet been fully implemented.

The primary resource / goods-producing sectors in the Resource Evaluation Area, particularly coal mining, remain an important driving force. Mining employment has increased somewhat due to increasing coal production. Forestry continues to be an important economic driver, but has declined in absolute and relative importance in the Cranbrook Forest District since 1996, in part as a result of consolidation and technological change in sawmilling. However, since most sawmilling takes place outside the Resource Evaluation Area in Elko, Galloway and Cranbrook, it is not clear what forestry employment trends have been for residents of the Resource Evaluation Area itself.

3.3. ANTICIPATED TRENDS IN ECONOMIC STRUCTURE

It is likely that the historical trends in the structure of the Resource Evaluation Area economy will continue for the foreseeable future, including the increasing importance of service sectors compared to goods-producing sectors. These structural trends, mirrored by similar trends elsewhere in the Province, will be reinforced by tourism growth,

population growth and aging, improvements in transportation and communications infrastructure, and technological change. Economic development organizations at the local, regional, provincial and federal level (including non-government organizations such as the Columbia Basin Trust) are actively promoting economic diversification. These trends are of course subject to considerable uncertainty, particularly regarding markets for and production of coal, and potential developments in the minerals and energy sector.

Mining will continue to be the dominant industry in the Resource Evaluation Area economy for the foreseeable future. Forestry is likely to continue declining in relative and perhaps absolute importance due to harvest constraints, technological change and consolidation, although provincial growth trends in value-added and supporting technical services could also occur in the Resource Evaluation Area.

The outlook for mining and energy is much more unpredictable due to the hidden nature of the resource. The relative importance of employment at existing coal mines may not increase, if only because of strong growth in tourism and the service sector. A major energy or mineral development (e.g. coal or metal mine) could result in significant economic impacts within the Study Area and reversal of historical trends, although the likelihood and timing of such developments are very uncertain.

The strong historical growth in tourism, the number of tourism-related investments being proposed (including backcountry recreation operations), the proximity of the area to Alberta and the US borders, and the fact that all of the communities in the Resource Evaluation Area include tourism as a key economic development priority,[12] suggest that this sector will continue to grow strongly. The Fernie ski resort will continue to be the driving factor within the tourism sector in the Resource Evaluation Area. Tourism development outside the Resource Evaluation Area (including developments at Kimberley Alpine Resort and the upgrading of the Cranbrook airport) will have spill-over effects on, and reinforce tourism growth in, the Resource Evaluation Area.

In-migration of "urban refugees" and retirees from Alberta and elsewhere in BC, will likely continue, and with them, associated pension and investment incomes and displacement of imported goods and services by new entrepreneurs. Per capita income may decline, given the shift to lower wage service industries (although this is not supported by available data)[13], but increasing demand for recreational property could still increase the wealth of Resource Evaluation Area property owners. Participation of women in the economy (e.g. as entrepreneurs) and their contribution to family incomes may also grow, reflecting continued growth in the service sectors in which women have traditionally participated and the need to supplement family incomes.

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[12] *Research and Assessment for a Kootenay-Boundary Economic Transition Plan*, P. Levy and Associates, September, 1997.

[13] Data from BC STATS' *Community Facts* indicate that average incomes reflected in tax returns over the 1993-98 period have steadily increased in all communities in the Resource Evaluation Area.

Small businesses (including home-based businesses) and knowledge-based or "footloose" industries that are increasingly less reliant on location in large population centres, will continue to be an important source of employment growth, reinforced by advances in communications technology.[14] For these sectors, quality of life considerations such as access to recreation opportunities, availability of health and education services, and environmental amenities such as viewscapes and parks, are important competitive factors in location and investment decisions.[15] The government sector will continue to be a stabilizing factor in the economy of the Resource Evaluation Area. While employment in this sector may decline somewhat over the next several years due to provincial downsizing, in the longer term, the local, provincial and federal government sector will likely keep pace with a growing population and economy.

[14] Fernie Chamber of Commerce website, op. cit. See also *Kootenay Economic Development Magazine*, March, 2002 regarding the telecommunications initiative by the District of Sparwood.

[15] The correlation between environmental and other amenities and regional economic growth has been an increasing subject of research. See *Environmental Quality and Regional Economic Development*, Coast Writers Research and Communication, 1998; *Environmental Well-Being and Environmental Protection in the Pacific Northwest*, a consensus report by Pacific Northwest economists, December, 1995; and *Lost Landscapes and Failed Economies: A Search for a Value of Place*, T. Power, 1996.

4. BASE CASE FOR KEY ECONOMIC SECTORS

4.1. MINING AND ENERGY

4.1.1. Current Activity and Historical Trends

Coal Resources and Coal Mining

The East Kootenay region has a long history of coal mining activity, producing some 460 million tons of coal since 1898. Five of the seven coal mines currently producing in B.C. are located in the Crowsnest and Elk Valley coal fields. They account for about 87% of the annual coal production in the province, and produced coal valued at about $1 Billion Cdn. in 2001.

The communities of Fernie, Sparwood and Elkford are highly dependent on coal mining activity to create employment opportunities as well as to support social, economic and physical infrastructure. Most of the coal mine employees live in the communities near the mine sites, including the Crowsnest Pass communities in Alberta, but some commute from as far as Lethbridge and Calgary. Direct coal mining employment peaked in 1990 in the East Kootenays, and then suffered a dramatic decline in 1992 when both production and employment fell by about 45%. The closure of Westar's Balmer operations near Sparwood resulted in over 1200 layoffs and had serious economic consequences for Elk Valley communities. For a short period in 1992, three of the five currently operating mines were closed due to financial difficulty and/or strikes.

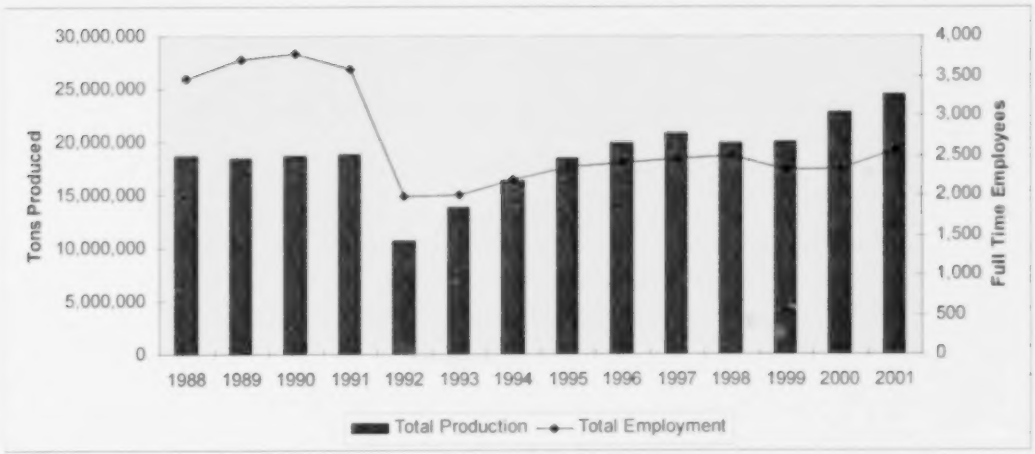
Since 1992, changes in mining techniques and technological advances have led to major increases in labour productivity in open pit coal mining. Teck Corporation reopened the Balmer operations in 1993 with far fewer employees, renaming it Elkview Coal Corporation, and Fording/Pohang purchased and reopened the Greenhills mine. Fording later took over the Byron Creek operations, renaming it Fording Coal Mountain. Over the past ten years total coal production from the East Kootenay coalfields has grown substantially to surpass the previous peak levels of the 1980s. Declining demand and prices in the late 1990s have been countered by major productivity improvements, which have allowed production to continue to expand.

The coal produced from the East Kootenay coalfields is exported to several overseas markets, with Japan taking the largest share. Prices for B.C. coal peaked in the early 1980s and after declining through the rest of the 1980s, levelled out for most of the 1990s. In 1999 and 2000, however, supply and demand imbalances led to sharp price declines, resulting in the premature closure of the Quintette mine in northeast B.C., and the deferral of development of other coal resources in the province (the Bullmoose mine operated by Teck Cominco in northeast B.C. is scheduled to close in 2003 upon exhausting reserves).

The East Kootenay coal mines have proven and probable reserves to support production at current levels for many years, and in the case of Elkview, several decades. In addition there are expansive measured, indicated and inferred resources outside of currently

planned mining areas which could substantially add to the economic life of each of the five existing mines or support new mine development projects.

Figure 4 East Kootenay Coal Production and Employment



Source: B.C. Ministry of Energy and Mines

Table 7: East Kootenay Operating Coal Mines

	Year Opened	Operator	Production Capacity (mil.tonnes)[a]	Employees		Proven & Probable Reserves (mil.tonnes)[d]	Mine life with existing reserves[e]
				1994[b]	2000[c]		
Line Creek	1981	Luscar / CONSol	3.8	487	401	62	19
Fording River	1968	Fording	10.0	936	747	217	24
Coal Mountain	1908/ 1974	Fording	2.5	91	172	33	13
Greenhills	1981	Fording / Pohang	4.5	270	350	110	24
Elkview	1968	Teck Cominco	6.0	307	502	260	43
			26.8	2,091	2,172	682	25

Notes:

a. Production capacity is taken from the 2001 Annual Reports for each operator.

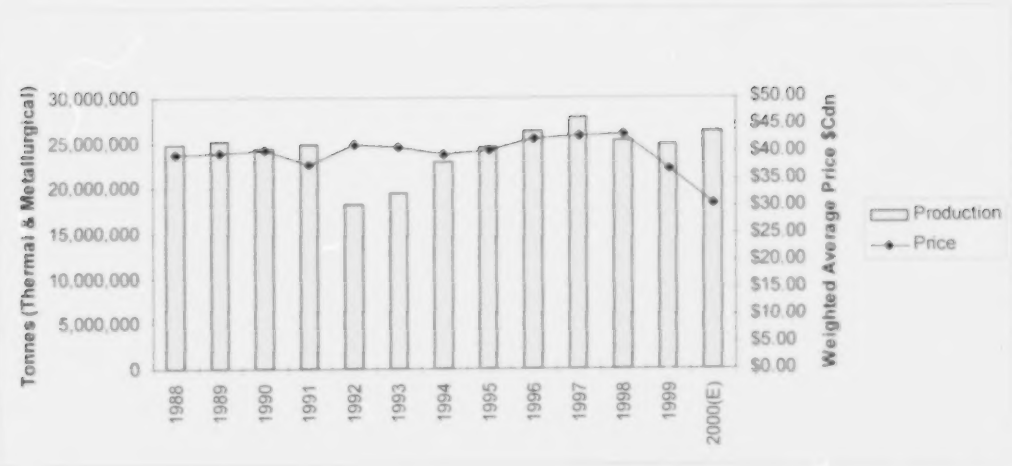
b. 1994 employment figures reported in Cranbrook Timber Supply Area Socio-Economic Analysis, March 1995, Pierce Lefebvre Consulting.

c. 2000 employment figures reported in The Mining Industry in British Columbia - 2000, PricewaterhouseCoopers, May 2001. The BC Ministry of Energy and Mines reports 2000 employment of 2,338, and an increase to 2,563 in 2001.

d. Proven and Probable Reserves are reported in the 2001 Annual Reports for each operator.

e. Remaining Mine Life With Existing Reserves is either taken from the 2001 Annual Reports, or calculated from reserves and capacity.

Figure 5: Historical Production and Mine Gate Selling Price in B.C.



Source: B.C. Ministry of Energy and Mines

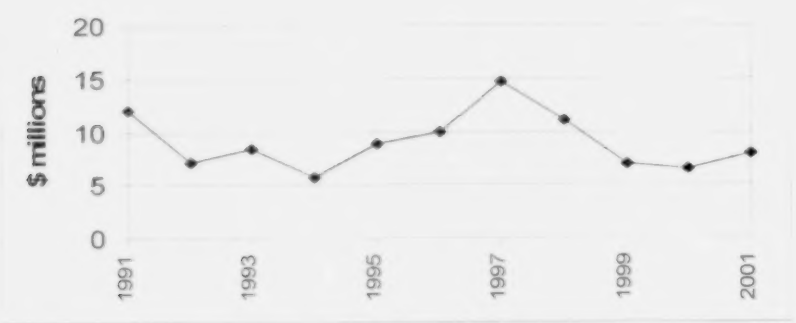
In spite of continuing difficulties in the steel making industry, prices have recovered substantially through 2001, and B.C.'s coal producers are expecting more of the same in 2002. Fording Coal's 2001 Annual Report noted an $8.00 Cdn per ton increase in the average price for its coal from B.C. operations between 2000 and 2001.

Mineral Exploration Activity

Overall Exploration Activity

Exploration expenditures in the Kootenay region (East and West) have averaged $9 million per year between 1991 and 2001, ranging between a high of $14.7 million in 1997 and a low of $5.6 million in 1994.

Figure 6: Kootenay Mineral Exploration Expenditures



Source: B.C. Ministry of Energy and Mines

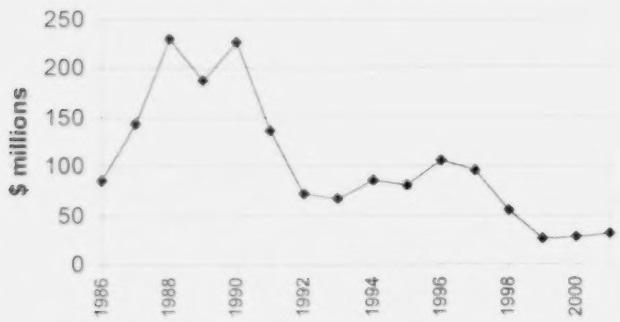
In 2001, the B.C. Ministry of Energy and Mines (MEM) reports that exploration expenditures in the region were $7.8 million, which represents 25% of the total for B.C.

The region's share of B.C.'s expenditures has been unusually high in the last 4 years with coal exploration taking a larger share of total exploration expenditures in B.C.

Coal exploration expenditures in 2001 have increased 2.5 times over the 2000 level, while exploration for other metals and minerals are a third of what they were in 1998.

The exploration spending pattern in the Kootenays reflects the pattern for the province overall. In the last 15 years, exploration expenditures in B.C. were at their highest between 1988 and 1990. Spending declined dramatically through 1991 and 1992, recovered somewhat to 1996, and then declined again to a low of approximately $25 million in 1999. Exploration increased slightly in 2000 and 2001 to the estimated 2001 level of $31 million (preliminary data). MEM estimates that provincial exploration expenditures of $150 million to $200 million per year are required to sustain the discovery of new mines.

Figure 7: B.C. Mineral Exploration Expenditures



Source: B.C. Ministry of Energy and Mines

During the last decade, many Canadian provinces suffered a significant drop in exploration expenditures, including Quebec and Ontario, which with B.C. were traditionally the targets of most of the mineral exploration effort in Canada. Canada's mining exploration effort dropped by half between the late 1980s and 1999/2000 with some of the drop in expenditures in B.C., Quebec and Ontario being offset by increases in exploration effort in the Northwest Territories, Nunavut and Newfoundland.

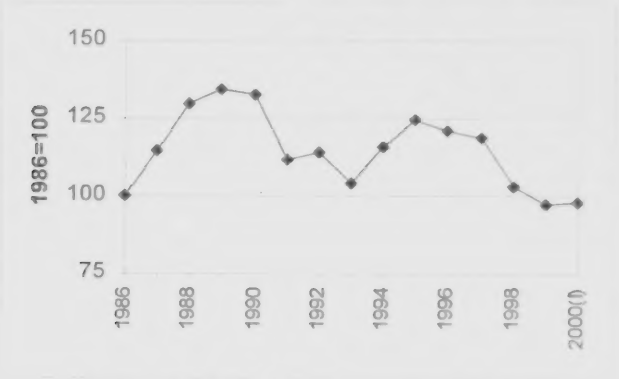
Some of the factors that have affected mineral exploration in B.C. and the Kootenays in recent years include:

- **Mineral commodity prices and US/Canada exchange rates**. These are probably the two most important factors affecting the industry. MEM has prepared an index of mineral prices for B.C. that includes copper, lead, zinc, gold, silver and metallurgical coal prices. The mineral price index does not take into account general inflation (i.e. prices are in nominal terms).

As shown on the chart opposite, B.C.'s mineral price index for 1999 and 2000 dropped slightly below what it was in 1986, even in nominal dollar terms.

The B.C. Mineral Price Index is based on prices in Canadian dollars. In recent years, the low Canadian dollar relative to the U.S. currency has assisted Canadian mining companies in remaining competitive. However, since so many other mineral producing countries have also seen their currency depreciate relative to the U.S. dollar, the low Canadian dollar has not helped the B.C. mining industry as much as it has the forest industry, for example.

Figure 8: B.C. Mineral Price Index (1986=100)



Source: B.C. Ministry of Energy and Mines

- **Land Use Conflicts**. Mining industry officials in B.C. often refer to some key landmark decisions that have, in their view, affected the state of exploration in B.C. These include the Windy Craggy/ Tatshenshini Protected Area and the Tulsequah Chief mine. While these decisions are in Northern B.C., investors claimed that they created a climate of land use uncertainty in B.C., which affected exploration expenditures throughout B.C. Also, in 1998, Treasury Board approved $5 million to fund the negotiated settlement of all mineral titles affected by PAs. By the end of 2000, MEM had reached settlement of approximately 55 mineral titles. Approximately 300 mineral titles have been expropriated and MEM is currently negotiating with many more titleholders.[16] Some of the more significant PAs created in or near the Resource Evaluation Area include the Akamina-Kishinena, Height of the Rockies and Elk Lakes.

  While land use conflicts may have affected mineral exploration in B.C., it is important to note, however, that the largest decline in expenditures occurred in 1991

[16] Ministry of Energy and Mines, e-mail dated December 22, 2000.

and 1992, before the results of the SLUPs and before the establishment of the Alsek-Tashenshini Protected Area.

- **Key Legislation**. There has been recent legislation and regulations aimed at clarifying guidelines for conducting exploration and obtaining permits to develop mines outside Protected Areas. These include the Mineral Exploration Code (MEC) and Bill 12, the Mining Rights Amendment Act. The mining industry had been hoping to strengthen the language of Bill 12 to make it clearer that SMZs do not constitute an additional set of more stringent environmental regulations on the industry and in May 2002, the B.C. Government announced changes to the Mineral Tenure Act that defines lands as either open or closed to mining (referred to as a Two-Zone system). Other changes to the Mineral Tenure Act and the Mines Act were also announced to help streamline the permitting process and encourage mineral exploration.

- **Other Factors and Government Policies**. The primary factors (mineral prices and exchange rates) driving the decline in exploration expenditures in the 1990s were not unique to B.C., although B.C. does appear to have suffered a slightly steeper decline than either Ontario or Quebec. Other factors that may have impacted B.C. exploration expenditures may include First Nations' claims, environmental regulations, tax policies, investment climate, labour and other costs, and other government policies. The legislation changes announced in May 2002 may help reduce the exploration expenditure gap between B.C. and other provinces.

Coal Mining Exploration in the East Kootenays

MEM reports that the 2001 exploration expenditures for coal were directed to drilling at, or in the vicinity of, the five producing coal mines in the Elk Valley. The increase in coal exploration activity in 2000 and 2001 reflects the more robust market for the high quality metallurgical coal produced in southeastern B.C. and increased levels of production at the mines in the Elk Valley.

Coal exploration expenditures in the last four years have taken place at or near the five existing coal mines. Fording has also carried out some exploration just north of the Coal Mountain mine.

Some coal exploration has occurred over the last 20 years in and near the Plan Area but outside the existing mine sites. This includes the Sage Creek Coal proposal, which has been dormant since the 1980s; the Flathead Townsite area, and the Lodgepole property, also currently inactive.

The B.C. Ministry of Energy and Mines has developed extensive geological maps of B.C. using a Gegraphic Information System (GIS) that shows mineral occurrences, mineral tenures and mineral capability for all of B.C. GIS data on known coal resources in the Resource Evaluation Area (Appendix 5) indicate the following:

- There are 24 documented coal occurrences in the Resource Evaluation Area including 5 producing mines, 4 past producing deposits, 2 developed prospects (occurrences

with defined grades and tonnages), 1 prospect (occurrence with some indication of dimension) and 12 anomalies/showings (occurrences that are not sufficiently defined to permit resource estimations).

- Coal tenures cover 7% of the total Resource Evaluation Area (2% of the private land area and 8% of the crown and other lands).

A Provincial report prepared in 2001 for the Ministry of Sustainable Resource Management showed that total coal tenures in the province added to 177,808 hectares, of which 50,131 hectares (28%) were in the Kootenay-Boundary region.[17] The 2001 data also showed that for the Kootenay-Boundary region, 78% of the coal tenures were in Enhanced Resource Development Zones, 17% were in general zones and 5% were on agriculture/settlement/private lands. The GIS data for the Resource Evaluation Area in Appendix 5 show a slightly greater area covered by coal tenures than was reported for the entire Kootenay-Boundary region in 2001 (51,963 hectares vs. 50,131 hectares).

Exploration for Metal and Industrial Deposits in the East Kootenays

Metal and Industrial Minerals Exploration Projects in the Plan Area

- **The Howell and Crowsnest properties, southeast of Fernie**. This project, which is located in the Howell Creek area, represents the most significant current mineral exploration in the Plan Area, and is. A total of $450,000 was spent on exploration on the Crowsnest property in 1999. Work for 2002 involves drilling on both properties, in an attempt to identify an economic gold deposit. Evidence to date suggests that the geology is favourable, and good grades have been identified in both drill samples and boulders.[18]
- **Ice diamond project northwest of Elkford**. Several occurrences of kimberlite, the typical host rock for diamonds, have been discovered in the Crossing Creek area. Approximately $1.7million has been spent on exploration in the past 7 years, and diamonds have been recovered from surface samples of three of the kimberlite bodies. In 2001, Skeena Resources Limited carried out a drill sampling program, with negative results.[19]
- **Other Prospects Currently Inactive**. There are other prospects in the Plan Area that have been identified in the past but have no active exploration drilling programs at the present time. These include gold and copper prospects east of the Flathead River. The area also has known phosphate-rock occurrences and abundant limestone.[20]

The GIS data on known mineral resources in the Resource Evaluation Area (Appendix 5) show the following:

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[17] Pierce Lefebvre Consulting et al., *Socio-Economic Impact Assessment of the Provincial Government's Strategic Land Use Plans on Key Sectors in British Columbia – Final Report*, B.C. Ministry of Sustainable Resource Management, 2001.

[18] From Eastfield Resources Ltd. Web site, www.eastfieldgroup.com/eastfield/crowsnest.html

[19] From Skeena Resources Limited News Release, March 22, 2002

[20] Based on discussions with industry and government representatives.

- There are 27 known mineral occurrences reported for the Resource Evaluation Area, of which 2 are shown as producing mineral deposits[21], 1 is a developed prospect and 24 are prospects.
- Mineral tenures cover 7% of the Resource Evaluation Area: 3% of the private lands and 8% of the crown and other lands.

The GIS data also show estimated mineral potential by ranking tracts in the Resource Evaluation Area from low to high using a provincial ranking hierarchy comprised of 794 ranks grouped into 10 categories.

Table 8: Mineral Potential for the Resource Evaluation Area

% Area by Rank	Metals	Industrial Minerals
0 (No values)	33%	18%
1 (Rank 1-88)	0%	0%
2 (Rank 89-177)	3%	0%
3 (Rank 178-266)	0%	0%
4 (Rank 267-355)	28%	0%
5 (Rank 356-445)	2%	3%
6 (Rank 446-534)	9%	13%
7 (Rank 535-623)	25%	47%
8 (Rank 624-712)	0%	8%
9 (713-794)	0%	11%
Sub-Total	100%	100%

Source: B.C. Ministry of Energy and Mines data reported by MSRM.

Total exploration expenditure data for the Plan Area are not readily available, but data from the MEM Assessment Report Index (ARIS) database show that between 1970 and 2001, an average of 11% of registered East Kootenay mineral exploration expenditures have been expended in the Plan Area. The percentage varies significantly from year to year, ranging between 41% in 1976 and 1% in 1991/1992. Appendix 6 shows the ARIS data for the East Kootenay and the Plan Area from 1970 to 2001.

Economic Impacts of Mineral Exploration and Mining

The Ministry of Energy and Mines reports that there are 2,563 employees in coal mining in the East Kootenays for 2001 (this is 10% higher than the 2,338 employees reported for

[21] The project team could not identify the two producing mineral deposits shown by the GIS data and they may be past producers or data anomalies.

2000, which is slightly higher than the Price Waterhouse Coopers estimate for 2000 reported earlier). In addition, there was an estimated 50 PYs of exploration employment in the East Kootenays for 2001, estimated as follows:

- BC Stats estimates that every $1 million in exploration expenditures (in constant 2000 $) generates 9.6 PYs of direct employment and another 5 PYs of indirect employment as a result of purchases of goods and services required for exploration.[22] By comparison, MEM estimates that in 2000, the mineral exploration sector generated some 744 PYs of employment. Based on the $27 million in B.C. expenditures for 2000, this represents 27.5 PYs per million dollars of exploration expenditures. However, a significant portion of the PYs of employment in the B.C. exploration sector may reflect exploration expenditures outside B.C., as Vancouver is a major financial and technical centre for global mineral exploration and mining.

- Applying the lower multiplier of 9.6 PYs per $ million dollar of exploration expenditures to the estimated $7.8 million spent in the Kootenay region suggests that the mineral exploration sector generates some 75 PYs of direct employment. Of this, 62% (or 46.5 PYs) would relate to coal mine site exploration in the Resource Evaluation Area, while the remaining mineral exploration would be scattered throughout the Kootenays, both East and West. In all, an estimated 50 PYs might be generated in the Resource Evaluation Area.

The following table (Table 9) summarizes the economic impacts associated with mining in the Resource Evaluation Area. Additional details may be found in Appendix 4.

Table 9: Summary Economic Impacts from Mining and Exploration in the Resource Evaluation Area

	Estimated B.C. Impacts from Mining and Exploration in the Resource Evaluation Area
Employment (direct, indirect and induced PYs in B.C.)	6,009 PYs
Employment Income (direct, indirect and induced impacts in B.C.)	$288 million
Government Revenues (includes provincial and municipal taxes, and employee income taxes)	$64.7 million

Source: Appendix 4 provides more detail.

[22] Based on a survey undertaken by Maki and Sunderman for BC Stats; as reported in *Socio-Economic & Environmental Assessment of the Mackenzie Draft Recommended LRMP*, 2000.

4.1.2. Anticipated Trends

Industry Trends

Coal Sector

The worldwide demand for coal is expected to increase in the long term, as developing countries consume increasing amounts of energy and steel. The rate of increase in demand is expected to be slower than the general rate of worldwide economic growth might suggest, as air quality and greenhouse gas emission concerns trigger substitution away from coal in both energy production and manufacturing processes.

Most of the coal currently produced from the East Kootenay coal fields is metallurgical (coking) coal used in the steel making process. Technological developments in the production of steel, including 'mini mills' which use scrap steel and electric arc furnaces rather than coking coal, and the use of pulverized non-coking coal injection in more efficient blast furnaces, are leading to declines in metallurgical coal imports in industrialized countries. This is expected be offset by increases in imports of coking coal in developing countries such as South Korea, Taiwan, India, Brazil and Mexico.

The demand for thermal coal (which has shown a declining share of total East Kootenay production to 4.4% in 2001)[23] is expected to grow more rapidly, as the demand for energy increases worldwide.

Aside from local and regional concerns in consuming countries regarding the environmental impacts of burning coal, the Kyoto Protocol Agreement on long term greenhouse gas emissions has the potential to significantly alter the worldwide demand for coal. The burning of coal has been identified as a contributor to greenhouse gas emissions, and substitution to other fuels could assist in achieving worldwide emission targets. Development and widespread adoption of better combustion technologies, and cleaner burning coal grades, could also prove to be effective in limiting greenhouse gas emissions.

Mineral and Metal Sector

As noted earlier, mineral commodity prices and the U.S./Canada exchange rates are probably the two most important factors affecting the mineral and metal sector, particularly at the exploration stage. In U.S. dollars, mineral commodity prices have generally declined throughout the 20th century as a result of expanding supply, global competition, and reductions in the costs of production. The B.C. Mineral Price Index in 2000 was approximately 25% (in nominal terms) lower than in the late 1980s, which partly explains the relatively low levels of exploration expenditures throughout the 1990s, particularly when coal exploration is excluded.

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[23] Source: B.C. Ministry of Energy and Mines, *B.C. Coal Production, 1988-2001*.

In the short term, the relatively slow economic growth in the North American economy in 2002 is unlikely to push commodity prices upwards. Most industry analysts in the Spring 2002 believe that there will be some strengthening in mineral commodity prices in 2002 and 2003, but no spectacular surges that would see major increases in activity. Gold is unlike other commodities, however, and its role as a hedge against inflation and adversity may result in some upward pressure on gold prices in the years to come, as has been experienced over the past several months.

In B.C., changes in government policies and rising gold prices have led to renewed optimism in the mineral exploration sector, which could spark some increase in mineral exploration activity.

Land Use Planning Issues

Coal Sector

The coal resources and reserves supporting the currently operating coal mines are located under private/agricultural/settlement lands (5%), Crown lands designated as general zones by the KBLUP (17%), or Crown lands designated Enhanced Resource Development Zones (ERDZs) for coal by the KBLUP (78%).[24]

The open pit coal mining operations and associated processing facilities have a very substantial impact on the land they disturb. As mine development moves from one portion of a mine-site to the next, previously mined areas are reclaimed and returned to a more productive state for the sponsorship of other values. Coal mining activities of the five producing mines have disturbed 10,191 hectares of land (private and public), of which 2,041 hectares have been reclaimed.[25]

With respect to coal mining activities on Crown lands in the Cranbrook TSA, the province's Chief Forester noted "It is expected that most coal mining areas within the timber harvesting land base will be rehabilitated back to some level of forest productivity, although some areas may be converted to lower productivity levels or open range".[26]
The Line Creek and Fording River mines operate on crown lands in ERDZs with Greenhills and Elkview operating on private lands. Coal Mountain operates primarily on private land, but has some processing infrastructure on crown lands in an ERDZ. The ERDZ designated lands comprise an estimated 5.2% of the Resource Evaluation Area (based on the 2001 data) and are managed under integrated resource management guidelines with an emphasis on coal mining and exploration.

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[24] Source: Pierce Lefebvre Consulting et al., *Socio-Economic Impact Assessment of the Provincial Government's Strategic Land Use Plans on Key Sectors in British Columbia – Final Report*, B.C. Ministry of Sustainable Resource Management, 2001, Appendix 4-10.
[25] Source: John Errington, BC Ministry of Energy and Mines, Victoria. Area disturbed is a total figure since mine startup to the end of 2000, as is area reclaimed. Reclaimed is defined as vegetation being established for at least one year.
[26] Larry Pedersen, *Rationale for Allowable Annual Cut Determination*, B.C. Ministry of Forests, December 2000, pg.41.

Metals and Minerals Sector

The long term value of subsurface metals and minerals is extremely difficult to gauge, given that their extent can not be determined with any certainty, and their final value in commodity markets is very cyclical. The mining community province-wide has expressed concern that the subsurface metals and minerals resource potential may be compromised through access restriction and land area exclusion policies that cannot take into account the unknown value of the resources beneath.

The metals and minerals sector seeks assured access to crown lands outside of protected areas for exploration, and some comfort that discovered deposits can be developed when found. Land use management for recreation, fish and wildlife values that restricts or diminishes road access, generally conflicts with the interests of metals and minerals exploration.

Energy Sector

Oil and Gas

The Resource Evaluation Area overlies a substantial portion of the Fernie Sedimentary Basin, which contains significant oil and gas resources. The Geological Survey of Canada estimates that the Fernie Basin contains 88 million barrels of oil, 400 billion cubic feet of natural gas, and 33 trillion cubic feet of coalbed methane.[27]

Of the Kootenay region's oil and gas resource potential, the provincially significant coalbed methane potential of the Fernie basin is currently receiving the most attention. EnCana (formerly AEC Oil & Gas) is conducting a coalbed methane recovery pilot project in the Elk Valley near the Fording River coal mine, and has petroleum and natural gas rights to 44,000 hectares in the Upper Elk Valley. Pending the success of this pilot, and the future price levels of natural gas, the East Kootenay region may become among the first in B.C. to produce commercial quantities of coalbed methane (EnCana has recently commenced commercial production from six coal bed methane wells in the Palliser area in Alberta.) The close proximity of the Trans Canada natural gas pipeline provides a relatively easy tie-in opportunity for coalbed gas produced in the Elk Valley area, compared to other areas of B.C.

EnCana currently employs 15 to 20 full time equivalents (FTEs) on the project, and expects 300 construction jobs and 30 full time ongoing jobs to result if full production development proceeds.[28]

The East Kootenay region has the longest history of petroleum exploration in the province, and almost all of it has been in the Resource Evaluation Area. Oil and gas exploration that has occurred in the Plan Area in the past includes several wells drilled by various operators in the Flathead area, which were ultimately abandoned. The area is

[27] www.em.gov.bc.ca/Oil&gas/initiatives/Graphics/BCSedBasPipMap1.jpg

[28] Allan Greeves, EnCana, personal communication.

viewed as having high oil and gas potential that has not been fully explored (it has been observed that lack of production does not necessarily indicate lack of potential[29]).

GIS data supplied by MSRM (Appendix 5) indicate 60,643 hectares of the Resource Evaluation Area are under petroleum and natural gas tenure or 8% of the Resource Evaluation Area. This includes 39,776 hectares under drilling license, 4,648 hectares under Class B permit, and 16,219 hectares under petroleum and natural gas leases. Areas with coal bed methane potential cover approximately 9% of the Resource Evaluation Area, including 25% of the private lands and 5% of the Crown and other lands.

Electricity Production

B.C. Hydro operates two hydroelectric generating stations in or near the Resource Evaluation Area. The Aberfeldie Dam is located on the Bull River about 35 kilometres southeast of Cranbrook. This 32 metre-high concrete dam, originally constructed in 1954, was recently upgraded (Dec. 1999) to provide additional support to withstand full silt loading and earthquake loads. The Elko Dam and Powerhouse are situated in the Elk River Canyon, 55 kilometres southeast of Cranbrook. Originally constructed in 1924, this facility supplies 86,000 megawatt hours of energy annually to customers in the region. Both of these facilities and related water systems are scheduled for upcoming Water Use Plans sponsored by B.C. Hydro.

Fording Coal has developed plans for a 150 megawatt, coal-fired power plant near the Fording River mine site using predominantly reject coals from mining and processing activities. This power plant would serve the needs of Fording's mining operations, as well as provide power for sale on the power distribution grid.

4.2. FORESTRY

The Southern Rocky Mountain Management Plan Area (Plan Area) and the associated Resource Evaluation Area form a significant part of the Cranbrook Forest District (CFD). The CFD includes communities in the Resource Evaluation Area such as Elkford, Sparwood and Fernie, as well as the somewhat larger communities of Kimberley and Cranbrook to the west of the Resource Evaluation Area. Since from a forestry perspective, the Plan Area and Resource Evaluation Area are part of a larger management unit (i.e. the CFD/TSA), data are presented at the CFD level and then the Resource Evaluation Area implications are discussed.

This section is based on the following information sources:

- Various socio-economic studies and multiple-account analyses conducted for or by the Ministry of Forests (MOF) as part of the Timber Supply Review (TSR) process. These are listed as part of the bibliography at the end of the Base Case report.
- Data collected from the MOF on Timber Harvesting Land Base and volumes billed.

[29] Patrick Monahan, Presentation to Subsurface Resources Workshop, Feb. 2002

- Discussions with industry and government to help update some of the information presented in reports prepared as part of TSR-1 and TSR-2 and to help gain an understanding of the various issues facing the forest sector in the Plan Area.
- The Kootenay/Boundary Land-Use Plan and Implementation Strategy.

4.2.1. Current Activity and Historical Trends

Land Area and THLB

The Plan Area and the Resource Evaluation Area comprise approximately 30% and 51% respectively of the land area and 19% and 28% respectively of the THLB[30] in the Cranbrook FD.

Table 10: Area and THLB for the Cranbrook Forest District and the Plan Area

	Total Area (ha) and % of Cranbrook FD	Timber Harvesting Land Base (THLB)[c]		Area not owned or administered by Province[b]	
		Hectares	% of Area	Hectares	% of Area
Cranbrook Fd[a]	1,483,083 ha	407,058	27%	228,764	15%
Resource Evaluation Area (% of Cranbrook FD)	754,463 ha (51%)	114,593 (28%)	15%	149,679 (65%)	20%
Plan Area (% of Cranbrook FD)	440,614 ha (30%)	78,179 (19%)	18%	68,386 (30%)	16%

(a) The total area for the Cranbrook FD includes the Purcell Wilderness Conservancy and various provincial parks.
(b) The area not administered by the Province of B.C. includes private land and areas under federal jurisdiction.
(c) The THLB for the Cranbrook FD excludes all current and contemplated future reductions to the productive forest.
Sources:
Cranbrook Forest District PCRS Reports by Landscape Unit.
B.C. Ministry of Forests, *Timber Supply Review Cranbrook Timber Supply Area Analysis Report*, 1999.

Lodgepole pine accounts for about 60% of the commercially harvested timber in the Cranbrook FD, with spruce, balsam, fir and larch comprising another 35% of the total. The profile of the harvestable timber in the Plan Area is similar to the district wide profile. In the Cranbrook FD 71% of the forest stands on the timber harvesting land base are younger than the minimum harvestable age[31]. Similarly, approximately 75% of the stands on the THLB in both the Resource Evaluation Area and the Plan Area are classified as immature[32]. While these data are not directly comparable, due to major

[30] The proportions of the THLB are calculated using the THLB definitions and designations in the Timber Supply Review for the Cranbrook TSA, Ministry of Forests, 1999.
[31] B.C. Ministry of Forests, *Timber Supply Review, Cranbrook Timber Supply Area Analysis Report*, 1999, page 14.
[32] GIS data supplied by the Ministry of Sustainable Resource Management (MSRM) for this planning process (Appendix 3).

differences in the criteria being measured, they do indicate a similar predominance of immature timber.

AAC for the Cranbrook TSA

As of January 1, 2001, the AAC for the Cranbrook Timber Supply Area (TSA) is 871,000 m3, of which 838,000 m3 is from the conventional timber harvesting land base. The balance or 33,000 m3 is to be harvested from areas with problem forest types and from fire-maintained ecosystem restoration areas. The following table summarizes recent changes in the AAC levels for the Cranbrook TSA.

Table 11: Changes to AAC for Cranbrook TSA, 1980 to 2001

Year	AAC Levels	Comments
1981 to 1987	900,000 m^3	
1987	873,810 m^3	Reflects land transfer from Cranbrook TSA to Invermere TSA
1990	1,249,810 m^3	Reflects one year increase of 376,000 m^3 to harvest beetle infested area
1991 and 1992	1,157,810 m^3	Reflects two year increase of 284,000 m^3 each year for beetle area
1993 and 1994	873,810 m^3	
1995	900,947 m^3	Reflects addition of the former Tree Farm License (TFL) 13
1996	850,000 m^3	Reflects 5.6% reduction in AAC following TSR-1
2001	871,000 m^3	Of this, 838,000 m^3 is to be harvested from the timber harvesting land base (excludes 12,118 m^3 per year of woodlot license volume which had previously been included in the AAC for the TSA) and the other 33,000 $m^3$is to be harvested from 380 hectares per year of problem forest types and from 230 hectares per year of fire-maintained ecosystem restoration areas.
Average 1995-2001	860,278 m^3	

Source: Pedersen, Larry (Chief Forester), B.C. Ministry of Forests, *Cranbrook Timber Supply Area, Rationale for Allowable Annual Cut (AAC) Determination*, Effective January 2001.

The conventional AAC remained stable at 873,810 m3 between 1981 and 1995 (after accounting for the 1987 change in AAC boundaries and the incorporation of former TFL13). In 1996, the conventional AAC dropped by 5.6% to its current level, and remained unchanged in the 2001 determination. During the same period, special licenses of up to 376,000 m^3 were issued to harvest beetle infested and problem type forests.

Table 12: AAC Apportionment for the Cranbrook TSA

	AAC (m^3/year)	% of Total AAC
Forest License: Tembec Industries	607,652 m^3	69.8 %
Forest License: Galloway Lumber Company	131,100 m^3	15.0 %
Timber Sale Licenses: MacDonald Ranch and Lumber	5,672 m^3	0.7 %
Small Business Forest Enterprise Program (all categories)	121,458 m^3	13.9 %
Forest Service Reserve	5,118 m^3	0.6 %
Total	871,000 m^3	100 %

Note: Woodlot licenses and their supporting land base have been removed from the TSA for the purposes of AAC determination. In the Cranbrook Forest District woodlot licenses support an annual harvest of 12,118 m^3.

Source: Pedersen, Larry (Chief Forester), B.C. Ministry of Forests. 2001. *Cranbrook Timber Supply Area, Rationale for Allowable Annual Cut (AAC) Determination*, Effective January 2001.

Timber Harvest

Between 1995 and 2001, the billed volumes and stumpage revenues from crown lands for the Cranbrook TSA have averaged approximately 980,000 m3 and $16.2 million respectively (an average of $16.43 per m^3). Billed volumes and the AAC are typically not comparable over short periods of time mainly due to cut control flexibility, which allows licensees to harvest within 50% of their AAC in any given year as long as the harvest level over a 5 year period is within 10% of their AAC. Undercuts or over cuts for a five year period are carried forward and averaged into a license holder's AAC for the following 5 year period.

Other factors that reduce the comparability between billed volumes and AAC include Licenses-to-Cut which occur outside of AAC, and 'Opportunity Wood' which is below AAC utilization standards but which is scaled and billed by the Revenue Branch. Nevertheless, the billed volumes data do seem to indicate that between 1995 and 2001, licensees have harvested approximately 14% more than the AAC of some 860,000 m3. The following table shows billed volumes, values billed and average billed value per m3 for the years 1995 through 2001.

Table 13: Volume and Average Value Billed for the Cranbrook TSA, 1995 to 2001

	Volume Billed (m^3)	Value Billed (m^3)	Average Value Billed $ per m^3
1995	884,768	$17,329,789	$19.59
1996	1,144,659	$23,509,542	$20.54
1997	870,240	$17,112,198	$19.66
1998	849,998	$7,484,716	$8.81
1999	919,718	$12,859,544	$13.98
2000	1,181,539	$18,896,367	$15.99
2001	999,663	$16,439,591	$16.45
Average 1995 - 2001	978,655	$16,233,107	$16.43

Note: Volume and value billed excludes deciduous, waste and reject categories.
Source: B.C. Ministry of Forests Revenue Branch.

In addition to the timber harvested on crown land, there is significant harvest from private lands in the Cranbrook FD. The Revenue Branch of the Ministry of Forests reports that between 1995 and 2001, an average of 252,000 m3 was harvested each year from private lands and Indian Reserves. Further details are provided in Appendix 1. Substantial portions of these lands are contained in the Resource Evaluation Area (65%) and the Plan Area (30%). Based on these land area proportions, the implied contributions of timber from private and federal lands average 165,000 m3 for the Resource Evaluation Area and 75,000 m3 for the Plan Area per annum (see Appendix 2-2 for more detail).

Prorating the annual private land timber harvest based on the share of private lands in the Resource Evaluation Area and Plan Area is questionable, since more of the private lands in the Resource Evaluation Area are Managed Forest Lands, compared to the Cranbrook Forest District as a whole. Direct estimates by industry participants, however, yield a similar result of about 165,000 m3 per annum for the Resource Evaluation Area.

Major Licensees and Processing Facilities

Timber resources harvested from Crown and private forested lands in the Resource Evaluation Area help support major timber processing operations located outside of the Resource Evaluation Area, including: sawmills at Elko and Galloway, a planer mill and value added plant in Cranbrook, and pulp mills at Skookumchuck and Castlegar. There are two major licensees in the Cranbrook FD, Tembec and Galloway Lumber Company Ltd., as well as several smaller operations harvesting timber under the Small Business Program.

In total, primary processors in the Cranbrook FD process about 1,219,000 m3 of logs per annum. Crown and private lands in the Resource Evaluation Area provide an estimated 34% (410,000 m3) of these logs, including 20% (243,000 m3) from the Plan Area (see Appendix 2-1 and 2-2).

Tembec Industries Inc. (Tembec)

Tembec is the largest wood harvester and processor in the East Kootenay region, and the largest harvest licensee in the Cranbrook FD. Tembec processes wood from the Plan Area at a large sawmill in Elko, a planer mill in Cranbrook, a value added plant in Cranbrook and a pulp mill in Skookumchuck.

Tembec (formerly Crestbrook Forest Industries) rationalized and reorganized its sawmilling capacity in 1998 with the closure of a large sawmill in Cranbrook, and increased utilization of its sawmills in Elko and Canal Flats. The planer mill associated with the closed Cranbrook sawmill continues to operate, providing additional planer capacity for both the Canal Flats and Elko sawmills. A $10.7 million Value Added Centre was opened in September 2000 on the site of the closed sawmill in Cranbrook, but this facility has been idled since November 2001 pending developments in the U.S. softwood lumber trade dispute and improvements in the production processes at the facility.[33]

Tembec has also recently added a $50 million co-generation facility to the Skookumchuck pulp mill which uses bark and wood waste from sawmills in the region to produce electricity, significantly reducing its energy costs at the pulp mill and providing environmental benefits to the region.[34]

Galloway Lumber Company Ltd. (Galloway)

Galloway is an independently owned sawmill operation in Galloway, some 50 km east of Cranbrook. The operation started in 1945 and it amalgamated with Silver Ridge Sawmills approximately 10 years ago.

Galloway has the capacity to produce some 52.8 million board feet of lumber each year and generates some 89 PYs of employment in timber processing (excluding woodlands

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[33] Source: Tembec Inc., Press Release, *Tembec Shuts Down the Cranbrook Value Added Centre*, November 2, 2001.

[34] Source: Tembec Inc., Press Release, *Tembec Announces the Official Opening of its $10.7 Million Cranbrook, B.C. Value Added Centre*, September 26, 2000.

and logging contractors). Recent upgrades to the Galloway mill include a new planer (1997), a new log barker (2001), and a new cut-off saw (2001).

Smaller Processing Facilities

There are a few smaller processing facilities located in the Cranbrook FD. They include:

- Two smaller lumber mills: Bear Lumber in Cranbrook and MacDonald Ranch and Lumber in Grasmere. Together, these two mills have an annual capacity of 12 million board feet of lumber.
- Two pole manufacturers: CFP Enterprises (previously Canada Cedar Pole and then Carney Forest Products) and J.R. Blackmore & Sons (merged with Kootenay Wood Preservers Ltd.).
- Various smaller primary processing facilities including two log home manufacturers, Canalog Wood Industries Ltd. and Grizzly Peak Log Homes Ltd.

Timber Processing Employment

The timber harvest from the Cranbrook FD is primarily processed at sawmills and primary facilities within the Cranbrook FD and the chips produced from the various sawmills are processed at the Tembec pulp mill in Skookumchuck in the Invermere TSA, and at the Celgar facility in Castlegar.

The Plan Area and Resource Evaluation Area boundaries exclude most of the timber processing facilities that depend on timber harvested in the region. For example, Galloway and Elko, the two communities where most of the sawmilling takes place, are just on the outside edge of the Plan Area. Also located outside the Plan Area is the planer mill in Cranbrook, which depends on the Elko sawmill for 52% of its lumber input, and the Skookumchuck pulp mill, which is partly dependent on chips from the Cranbrook FD sawmills. While the pulp mill in Skookumchuck is in the Invermere TSA, most of the workers at the mill reside in the Cranbrook Forest District.

Previous socio-economic studies prepared as part of TSR-1 and TSR-2 have isolated the TSA forest sector impacts from the provincial impacts. Since the Plan Area includes very few communities, the consultants have chosen not to differentiate between the forest sector employment inside the Plan Area or Study Area, and employment in the Cranbrook FD and Skookumchuck area (referred to here as the Cranbrook Region). Employment and government revenue coefficients derived for the region and province are applied to the Plan Area harvest to estimate the economic impacts of the Plan Area harvest.

Manufacturing facilities in the Cranbrook Region currently generate an estimated 922 Person Years (PYs) of employment. This includes:

- 753 PYs of employment at Tembec' s Elko mill, Cranbrook planer, Cranbrook head office and Skookumchuck pulp mill;
- 89 PYs at the Galloway Lumber sawmill; and
- an estimated 80 PYs at other primary timber processing facilities.

Excluded from this estimate are the 37 jobs at the Cranbrook value-added plant.

Timber processing employment has dropped since 1993, the year that was reviewed as part of the TSR-1 socio-economic analysis conducted for the Cranbrook TSA. In 1993, the forest industry in the Cranbrook Region generated some 1,126 PYs of employment, compared to the 922 PYs estimated for 2002, a drop of 18%. The major changes are as follows:

- Employment dropped by 13% at Tembec, mainly due to the closure of the Cranbrook sawmill. Even though some additional employment was created at Elko, employment has nevertheless dropped from some 871 PYs in 1993 to 753 PYs in 2002. This excludes the 37 PYs at the value-added plant (when the value-added plant re-opens, the drop in Tembec employment would still be 9% and the overall drop in employment for the region would be 15%).
- Employment estimates for the smaller processing plants dropped from 150 PYs in 1993 to some 80 PYs in 2002, a drop of 47%. The data, however, may not be entirely comparable. It is possible that the 2002 data do not capture the full employment at the smaller processing facilities that operate in the Cranbrook TSA and surrounding region, and as a result, the drop in employment at the smaller operations may not be as significant as is being implied.

Employment Coefficients

Table 14 summarizes the employment coefficients per 1,000 m^3 of timber harvest for the Cranbrook Region. As noted earlier, most of the employment impacts occur within the Cranbrook FD and in Skookumchuck and as a result, the table does not differentiate between the impacts that occur in the Plan Area and those that are in Cranbrook and other nearby communities but fall outside the Plan Area. These coefficients, however, can be used to roughly estimate direct employment impacts of SRMMP timber. The table includes current data as well as data presented in the TSR-1 and TSR-2 socio-economic analyses.

Table 14 shows that the timber harvesting and silviculture coefficients increased overall between 1993 and 1998, from 0.37 in 1993 (0.30 for timber harvesting and 0.07 for silviculture) to 0.41 in 1998 (0.36 for timber harvesting and 0.05 for silviculture). This 11% increase is partly due to the enacting of the Forest Practices Code in 1995. The current coefficients for timber harvesting and silviculture are assumed to have remained at the 1998 level.

Table 14: Employment Coefficients Per 1000 m^3 of Wood Harvested and Processed

Provincial Impacts by Sector	TSR1 - 1993	TSR2 - 1998	April 2002 (excl. Tembec Value-Added Plant)
Direct Employment:			
• Timber Harvesting	0.30	0.36	0.36
• Silviculture	0.07	0.05	0.05
• Wood Processing	0.57	0.42	0.38
• Pulp & Paper Processing	0.14	0.12	0.14
Total Direct Employment	1.08	0.95	0.93
Indirect & Induced:			
• Regional (Cranbrook Region)	0.63	0.43	0.49
• Outside Region, within B.C.	0.80	0.48	0.68
Sub-total Indirect & Induced	1.425	0.91	1.17
Total Direct & Indirect Employment	2.506	1.86	2.10

Source: MOF reports prepared as part of TSR-1 and TSR-2 and discussions with licensees.

Table 14 also shows the indirect and induced employment that may result from timber harvesting.[35]

The table differentiates between the Cranbrook Region and the provincial indirect and induced employment impacts.

The employment coefficients imply that for every 1000 m3 harvested in the Cranbrook Region, some 0.93 PYs of direct employment are created in timber harvesting and processing.

The table also shows that an estimated 2.10 PYs of employment in B.C. result from harvesting each 1000 m3 of wood in the Cranbrook Region. This employment coefficient excludes the Tembec value-added plant. Including the impacts of the value-added plant would increase the overall employment coefficient to 2.20 direct, indirect and induced PYs per 1000 m3. Appendix 2 provides more detail.

Summary of Economic Impacts from Forest Industry

Table 15 summarizes the forest industry in the Cranbrook TSA, the Resource Evaluation Area and the Plan Area. Additional details are presented in Appendix 2. The impact estimates assume that the forest industry in the Cranbrook Region relies on timber harvested from the Plan Area in direct proportion to the share of the Cranbrook TSA timber harvesting land base that is represented in the Plan Area. There are a number of reasons why this may not be the case, at least not in the short and medium term. Some of these are:

[35] Indirect employment represents the spin-off effects of related sectors or industries, which supply materials or equipment to an industrial sector, in the case of this report, the forest sector. Induced employment is the result of direct and indirect employees spending their incomes on goods and services.

- The THLB in the Plan Area may have a higher representation of non-timber values which constrain the volume of timber that can be harvested from each hectare of THLB;
- The average volume of timber harvested per hectare in the Plan Area may differ from the average for the entire TSA, due to differences in species, maturity, site productivity, etc.; and
- Short- term harvesting plans may not be evenly distributed across the TSA.

The impact estimates for the Cranbrook TSA shown in Table 15 represent only a portion of the total forest industry impacts in the Cranbrook Region, as these exclude the impacts of the private harvest and other timber processed in the region.

The Resource Evaluation Area represents 28% of the CFD Timber Harvesting Land Base and on that basis would account for an estimated 244,000 m3 of the AAC. Similarly, the Plan Area accounts for 19% of the CFD THLB and on that basis would account for 165,000 m3 of the AAC. This assumes that the timber profile for the CFD mirrors the timber profile for the Study areas.

Table 15: Estimates of Annual Forest Industry Economic Impacts

	Cranbrook TSA	SRM Study area	SRM Plan Area
THLB	407,058 ha	114,593 ha	78,179 ha
Employment (direct, indirect and induced PYs in B.C.)	1,236 PYs	348 PYs	237 PYs
Employment Income (direct, indirect and induced impacts in B.C.)	$72.1 million	$20.3 million	$13.9 million
Provincial Government Revenues (stumpage and related payments, other forest industry taxes, employee income taxes)	$27.4 million	$7.7 million	$5.3 million

Source: Appendix 2 provides more detail.

Christmas Tree Industry

The East Kootenay region produces between 400,000 and 500,000 Christmas trees annually, which represents a significant portion of the B.C. production. Approximately 25% of this activity occurs on Crown lands, primarily in the East Kootenay Trench. There are between 100 and 115 Christmas tree growers in the East Kootenay area (based on 1996 report), which likely generate between 40 and 50 PYs of employment.[36]

The KBLUP Implementation Strategy notes that there could be negative impacts on Christmas tree production in the East Kootenay Trench, as management for other values

[36] Source: The number of permits is from *The KBLUP Implementation Strategy*, 1996 (Chapter 7); the job estimate is based on the 1995 number of permits and estimated employment for the Christmas Tree industry in the Cranbrook TSA where approximately 95 Christmas tree growers generated an estimated 35 PYs of employment (Source: Pierce Lefebvre Consulting, Cranbrook TSA Socio-Economic Analysis, 1995).

encroaches on the Christmas tree production land base (e.g. wildlife winter range, livestock forage, biodiversity and ecosystem restoration opportunities). As is noted in the AAC Rationale for Cranbrook TSA[37], since the 1980s, the area under permit for Christmas trees has been reduced as licenses are not replaced upon expiry. This however, would only impact the 25% of the industry that operates on Crown lands.

4.2.2. Anticipated Trends

Long Term AAC

As part of the information generated for the most recent Timber Supply Review (TSR-2) for the Cranbrook Timber Supply Area, an analysis was undertaken of the long-term sustainability of the AAC. A base case was generated which considered several factors not incorporated in the base case for the TSR-1 in 1996, including:

- a more complete factoring in of the provisions of the Forest Practices Code,
- an update of the forest inventory for recent disturbances,
- government approval of the Kootenay-Boundary Land Use Plan (KBLUP), which provides direction for resource management in the region,
- greater recognition of the contribution of inoperable forests to non-timber values and management objectives,
- changes to accounting for recreation values, and
- a re-evaluation of problem forest types.

The base case indicated that the AAC could be maintained for 130 years, followed by a 10% reduction to 754,000 m3 for 50 years, and then a steady long-term harvest level of 883,000 m3.

- This base case did not fully reflect current management in the TSA, or the impending implementation of the Kootenay Boundary Higher Level Plan Order. Key management direction not modeled in the base case, which could have a significant impact on harvest levels includes: Biodiversity Emphasis Options assigned by the Regional Landscape Unit Planning Strategy; and Connectivity Corridors.

A sensitivity projection demonstrating the impacts of implementing the landscape unit Biodiversity Emphasis Options proposed by the KBLUP-IS, shows that the existing AAC can be maintained for 20 years before dropping 7.5% for a period of 80 years and then moving back to the long-term harvest level.[38]

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[37] Cranbrook Timber Supply Area, Rationale for Allowable Annual Cut (AAC) Determination; Effective January 1, 2001; Larry Pedersen, Chief Forester, B.C. Ministry of Forests, pg 17.

[38] Source: B.C. Ministry of Forests (Larry Pedersen, Chief Forester), *Cranbrook Timber Supply Area Rationale for Allowable Annual Cut (AAC) Determination*; Effective January 1, 2001, pg 63.

Industry Trends

The B.C. Interior region is one of the more cost competitive regions in North America for producing lumber. A recent report by Dr. Peter Pearse on the Coastal Forest Industry shows the costs of producing lumber by world supply regions. Although the B.C. Interior is more cost competitive at producing lumber than the B.C. Coast and the US, it remains a much higher cost producing region than other provinces and many other regions in the world.

Figure 9: Costs of Producing Lumber by World Supply Regions ($ per mfbm)

Notes: Labour and other direct costs in Canadian dollars per thousand board feet (mfbm) in 2002. Excludes cedar.
Source: Based on PriceWaterhouseCoopers data, as reported in Pearse, Dr. Peter, *Ready for Change*, 2001.

Although not highlighted on the graph, fibre costs account for most of the direct costs of lumber, excluding labour costs.

Logging costs have increased significantly in recent years in B.C. In 1995, the B.C. government enacted the Forest Practices Code (FPC), which prescribed management guidelines for all values of the forest, including timber, fish, wildlife, water quality, biodiversity, soils, recreation and culture. In 1997, PriceWaterhouseCoopers estimated that road costs in B.C. almost tripled between 1992 and 1997 (from $263 million in 1992 to $761 million in 1997) mainly due to the additional roads required to meet the FPC adjacency rules, smaller cut blocks, and higher road building and maintenance standards under the code. Subsequent changes to the FPC may have alleviated some of the cost increases. Also, a recent move towards results based implementation of the FPC is

anticipated by industry to streamline the regulatory burden created by the FPC. Any increase in logging costs ultimately affects the cost competitiveness of the mills in international markets.

Higher stumpage rates have contributed to the higher fibre costs. For example, for the Cranbrook TSA, average stumpage rates for all crown harvest has averaged $16.01 per m3 between 1995 and 2001, compared to approximately $6 per m3 in the early 1990s. (Appendix 1 provides more detail on average billing values per m3).

Trade Disputes with the U.S. and Changes in Government Policy

In March 2002, the United States Department of Commerce announced that it would impose countervailing and anti-dumping duties totalling 29.01% (on average) on imports of Canadian softwood lumber (Tembec was one of six companies independently assessed, and it faces countervail and anti-dumping duties totalling 31.38%). As this report is being written, it is unclear how or if the dispute will be resolved. What does appear likely however is that the next few years will see significant government policy changes with respect to the B.C. Interior forest industry.

Potential forest policy changes raised as part of the Canada-U.S. Softwood Lumber Trade discussions have suggested broad changes to B.C.'s crown forest management including:

- Timber Sale Licenses presently awarded to the Small Business Forest Enterprise Program (SBFEP) could be awarded only on the basis of price (under the current system approximately half of the 13% sold under the SBFEP takes other factors such as employment and value-added investment into consideration).
- Forest Licenses and Tree Farm Licenses could be made freely transferable (the current Forest Act requires the payment of a "transfer tax" equal to a 5% volume reduction, which may be reinstated under certain conditions, such as undertakings to maintain or increase employment).
- The Forest Act could be amended to eliminate the annual cut-control requirements (under the Forest Act, harvesting on crown lands may vary around the Allowable Annual Cut (AAC) by plus or minus 50% each year as long as the harvest is within plus or minus 10% of the AAC over a 5 year period).
- The Forest Act could be amended to remove appurtenancy and timber processing requirements that direct a tenure holder to process timber at a specific mill or facility. Also, other restrictions that might impede temporary or permanent mill closure could also be eliminated.

Implementation of the Kootenay Boundary Land Use Plan

Most of the potential timber harvesting land base and timber harvest volume impacts of the KBLUP-IS have already been factored into the Timber Supply Review and the most recent AAC determination for the Cranbrook TSA. As discussed earlier, this included the impacts of newly designed protected areas and several other factors which may constrain timber harvesting activities. Connectivity corridors suggested by the KBLUP-

IS were not modeled in the Timber Supply Review, while biodiversity emphasis options were given consideration before the final AAC determination.

Issues to be addressed in the SRMMP, which may have implications for timber harvesting (primarily in terms of harvesting costs and the ability to economically harvest the AAC, rather than outright alterations to short term harvesting rates or the harvesting land base) include:

- Access management provisions,
- Biodiversity emphasis implementation,
- Wildlife habitat and species maintenance including altered ungulate winter range management and realigned connectivity corridors,
- Old growth forests,
- Management of riparian ecosystems,
- Visual landscape management,
- Community and domestic watershed provisions, and
- Private land stewardship.

At the time of writing a complete comparative analysis of the attributes of the timber harvesting land base in the Study Area and the TSA was not available. However, some initial data (see Appendix 3) allows the following observation.

The timber harvesting land base in the Study Area contains higher proportions of several managed non-timber values, than the timber harvesting land base for the entire Cranbrook TSA. Some key values with higher incidence on the THLB in the Study Area include high and medium biodiversity emphasis, connectivity corridors and ungulate winter range. For each of these managed values, the Timber Supply Review base case did not completely reflect management direction provided by the KBLUP. To the extent that management practice ultimately deviates from that modeled in the TSR base case, and/or the SRMMP alters management for these values, there may be impacts on timber harvesting that are not contemplated in the most recent Timber Supply Review.

4.3. TOURISM AND RECREATION

Tourism is defined here as employment and income generated by the spending of visitors to the study region on such activities as accommodation and food, recreation activities and transportation. Recreation is defined as outdoor activities enjoyed by residents of the Plan Area. Although local recreationists and tourists are often undertaking the same activities in similar locations, it is typically assumed that spending by local recreationists does not generate net regional employment and income. This is based on the premise that without local recreation opportunities, residents would simply divert expenditures to other locally produced goods and services. This is likely a conservative assumption, given the availability of high quality recreation opportunities just outside the Plan Area. It should be noted that much of the data presented below includes both tourism and recreation use as defined above.

4.3.1. Current Activity and Historical Trends

The East Kootenays in general, and the Plan Area in particular, are internationally renowned for their abundance and diversity of fish and wildlife, pristine wilderness settings and scenic viewscapes. With an annual snowfall of about 10 metres, the main tourist attraction to the area has been the array of opportunities for winter recreation, such as alpine and cross-country skiing and snowmobiling. However, the proximity of rivers and lakes, provincial and national parks, and additional attractions such as golf courses, are extending the tourist season and diversifying the markets for a growing range of food, accommodation and other commercial amenities. The area is also becoming increasingly popular for recreation property owners.

As shown in section 3 above, tourism is the second most important private sector contributor to the Resource Evaluation Area's economic base. Direct tourism employment in the Resource Evaluation Area in 1996 is estimated at about 660, accounting for about 15% of Resource Evaluation Area basic employment and 5% of basic income in 1996.[39] However, more recent data indicate that tourism employment has grown significantly since 1996, perhaps by more than 50%, due primarily to the Fernie Alpine Resort. As noted above these estimates do not include non-resident employment which relies in part on the tourism attractions of the Resource Evaluation Area. Based on 1996 data, about 69% of estimated tourism employment is in Fernie and 31% in Sparwood. Elkford has virtually no tourism employment and income in 1996, (see Table 3)[40] but more recent data indicate some activity.

Historical growth in tourism within the Resource Evaluation Area has been strong, despite declines in the total labour force. For example, the total labour force in the accommodation and food sector, which is highly correlated with commercial, front-country tourism, has grown about 48% over the 1981-96 period. This represents an average growth rate of over 2.6%/yr, despite declines in overall labour force over this period. Most of the growth in food and accommodation labour force has occurred in Fernie, but other communities in the Resource Evaluation Area are also experiencing increases. Anecdotal evidence also suggests a growing number of commercial backcountry and non-resident recreation activities in the Resource Evaluation Area, particularly in recent years.[41]

There are a number of components to the tourism industry in the Resource Evaluation Area, including: "front country" commercial facilities (including ski, and hotel / motel / B&B facilities), commercial back country operations (including wilderness lodges and hunting and angling guides) and recreation activities by the visiting public (e.g. snowmobilers and campers from Alberta, the rest of BC and elsewhere). These

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[39] Source: BC STATS economic dependency data. This is an estimate of direct employment, whereas estimates in Table 6 shows the sum of direct and indirect employment.

[40] Labour force data for 1996 does indicate labour force of 90 in food and accommodation in Elkford, although much of this could be attributed to the mining and public sectors which account for virtually all of the economic base in this community.

[41] *Recreational Hunting and Fishing and Commercial Hunting, Fishing and Trapping Focus Groups for the SRMMP*, Meeting Minutes, March 27, 2002.

components are all linked in varying degrees to land use and resource management issues (e.g., wilderness, fish and wildlife and scenic values; motorized and non-motorized access) in the Resource Evaluation Area. A portion of the tourism activity in the Resource Evaluation Area is also related to factors such as business travel, visits to relatives or through traffic. The visitor profile and various components of the tourism and recreation sector in the Resource Evaluation Area are described in more detail below.

Visitor Characteristics

While current information specific to the Resource Evaluation Area is not readily available, data from Tourism BC's extensive visitor survey undertaken in 1995-96 for the eastern Rockies area[42] provides an indication of the visitor profile for the Resource Evaluation Area. The geographic origin and the primary trip purpose for visitors to the eastern Rockies region is shown in Table 16 below. As Table 16 shows, 85% of visitors to the eastern Rockies were non-residents, and 15% residents of BC. Leisure travel accounted for about 89% of resident and non-resident visitors to the area, and business for about 11%. Regional Canadians and Americans comprised about 73%, "long haul" Canadians and Americans 14%, and overseas travellers from Europe and Asia for about 13% of non-resident visitors to the eastern Rockies.

Overall, the most important reasons for travelling to the eastern Rockies are to visit friends or relatives, participate in outdoor / wilderness activities and general sightseeing, in roughly that order. Participation in outdoor / wilderness activities is the primary trip purpose for a weighted average of about 23% of all visitors (resident and non-resident) to the area. This suggests that at least 23% of total tourism employment in the Resource Evaluation Area, or about 150 direct jobs per year (based on BC STATS economic dependency estimates), is directly related to wilderness / outdoor recreation activities.[43]

Interestingly, the BC Visitor Study indicated that while the eastern Rockies attracted 26% of all non-resident visitors to BC, this area accounted only 6% of non-resident expenditures. This is in part due to the fact that the average length of stay is much lower than for other parts of BC – about 3.6 days compared to the provincial average of 6.9 days.

While the linkage with land and resource management may not be as strong for visitors using front country facilities, these visitors also value the viewscapes and natural attributes of the Plan Area. The visual quality of the landscape can influence the duration and frequency of visits to commercial facilities.[44]

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[42] *British Columbia Visitor Study: The East BC Rockies Visitor Report*, Tourism British Columbia, 1998. Eastern Rockies is defined roughly as the area with Cranbrook and Kimberley on the west, Golden in the north, and then east to the BC - Alberta border.

[43] These estimates represent weighted average for all overnight visitor origins which account for most visitor spending in the Resource Evaluation Area (i.e., excludes day visitors). The primary trip purpose varies by origin of visitor. It is likely that the overall proportion of wilderness tourism-related economic activity is greater than estimated here since it excludes such activities that are not the primary purpose of the trip.

[44] *Kootenay Boundary Land Use Plan Implementation Strategy*, see Ch. 7 *Evaluation*, Draft, October, 1996.

Table 16: Visitor Profile (%) Southern Rockies, 1995-96

	Non-BC Residents	BC Residents
Visitor Origin (both overnight and day visitors)	85%	15%
Regional Canada / US	73%	n/a
Long Haul Canada / US	14%	n/a
Europe / Asia / Other Overseas	13%	n/a
Main Trip Purpose		
Business	89%	89%
Leisure	11%	11%
Visiting Friends & Relatives	29%	33%
Outdoors/Wilderness Activities	24%	17%
General Sightseeing	23%	12%
All Other	24%	38%

Source: *BC Visitor Study: Report on Visitors to the BC Rockies Tourism Region*, Tourism BC.
Note: Data for overnight visitors unless otherwise specified.

Commercial Facilities

The commercial component of the tourism industry in the Resource Evaluation Area is comprised of a diversity of business types, from an international resort operation to numerous independent, small business operators. There are a number of other commercial tourism and recreation facilities just outside the Plan Area at Elko, Jaffray, Lake Koocanusa, Fort Steele and Cranbrook. A proportion of visitors to these areas, as well as visitors on their way to, or from Alberta or the US, are also travelling through and purchasing goods and services at commercial facilities within the Resource Evaluation Area.

As noted above, growth in accommodation and food facilities in the Resource Evaluation Area has been relatively strong, averaging over 2.6% per year over the 1981-96 period, despite declines in the total labour force in the Resource Evaluation Area over the same period. Food and accommodation services also grew much more quickly than the service sector labour force as a whole, which increased at an annual average of 1.5%/yr. More recent data on annual room revenues for the East Kootenays region (which includes the Resource Evaluation Area) indicates continued strong growth in accommodation revenues of about 55% (or about 11.6% per year) from 1996 to 2000.[45] There has also been an increase in highway traffic on Highway 3 near Fernie and the Crowsnest Pass, and a significant increase in the value of residential and commercial building permits in Fernie over the 1995-2000 period.[46] There are many more "front country" businesses in the retail, transportation and service sectors which depend in part on tourism spending. The employment and income generated by these facilities are captured in the economic dependency estimates above.

[45] The growth rate is slightly higher (57%) when the Cranbrook area is excluded from the East Kootenays.
[46] Sources: Traffic count data from the Ministry of Transportation and Highways, summer average daily counts, 1996-2000. Value of residential and commercial building permits for Fernie from BC STATS' *Community Facts*. There was also an increase in Sparwood over this period, but less pronounced.

The bulk of tourism infrastructure, built facilities and amenities are located in Fernie, with its large, international ski facility (Fernie Alpine Resort), on-hill food and accommodation services and an RV facility. Fernie also has a variety of other commercial facilities in town, including: over 20 lodges, motels and hotels; two hostels; a number of B&B's and vacation rentals; 2 private campground / RV parks; and the largest selection of food and beverage services, retail outlets, a complete range of indoor and outdoor recreation facilities and other attractions (golf course, museums, galleries and studios).

Sparwood has a small ski hill, a golf course, a private campground (which recently expanded), and indoor and outdoor recreation facilities, in addition to a number of accommodation, food and beverage establishments. Elkford also has a small ski hill, golf club, municipal campground and 2 motels, one of which was constructed, and the other renovated in 1998, indicating growth in tourism in this community since the 1996 Census.

In recent years, skiing at the Fernie Alpine Resort has been the most significant driving force in the tourism sector in the Resource Evaluation Area. This resort, purchased in 1997 by the Ski Louise Group (who also own the alpine resort at Kimberley), is becoming one of the most popular ski destinations in North America. The economic impact of the resort is evidenced by the fact that 70% of the growth in food and accommodation labour force within the Resource Evaluation Area has occurred in Fernie over the 1981-96 period, which excludes more recent activity and related investments. A preliminary estimate provided by Resort staff indicates a current, peak employment level of roughly 600, significantly higher than in 1997.[47] The Fernie Alpine Resort is attempting to promote summer activities such as hiking, biking and horseback riding in order to increase utilization of existing accommodation and food facilities and diversify its markets.[48] This is a pattern familiar to other destination ski resorts in BC, including Whistler / Blackcomb, and will complement similar efforts by other commercial tourism facilities in the rest of the Resource Evaluation Area.

Guide Outfitting / Other Commercial Backcountry Recreation Operators

As noted above, the Resource Evaluation Area is renowned for its abundance and diversity of wildlife, particularly for large mammals such as grizzly, bighorn sheep, and mountain goat, and the wilderness setting which contributes to a unique and valued hunting and viewing experience. These activities also generate significant economic activity. There are 10 guide-outfitters with territories entirely or partly within the Resource Evaluation Area (and the same number, but a slightly smaller area of territories in the Plan Area). Based on provincial estimates by the Guide-Outfitters Association of BC (GOABC) of the economic impacts of industry for 1996, it is estimated that guide-outfitters operating in the Resource Evaluation Area directly employ about 70 people on a seasonal basis. While the number of guides has not increased since then, the number of clients, revenues and employment in the industry have all grown since 1996, despite a

[47] Estimate provided by Sandy Tymchyshyn, Assistant to Area Manager, Fernie Alpine Resort.
[48] Pers. comm., Herb Hess, BC Assets and Lands Corporation.

decline in the number of big game animals harvested.[49] An increasing proportion of guide-outfitter clients and revenues are related to non-hunting recreational activities which is broadening the client base and extending the season for the industry.[50]

Out of a total of 18 adventure tourism operators listed on the Fernie Chamber of Commerce Web site, there are 4 licensed adventure operators in the Resource Evaluation Area, and 3 in the Plan Area (most of the 18 operators are unlicensed). The licensed operators, most of whom are based in Fernie, offer a range of wilderness recreation activities including hiking, horseback riding, wildlife viewing, rafting and fishing. Currently, there are no licensed operators in the Flathead or Wigwam areas. Most of these commercial backcountry activities are on Crown lands. There has been a significant increase in angling guide licences issued in the Resource Evaluation Area in recent years. There are apparently over 140 angling guides operating in the Kootenay Region 4 at this time, many of whom are non-resident but are partly operating in the Resource Evaluation Area. This is raising concerns about the sustainability of fish populations, particularly on more heavily fished streams such as the Elk River.[51] Other key fish streams in the Resource Evaluation Area include the Flathead, Bull and Wigwam Rivers.

Public Recreation

There is one provincial campsite (Mt. Fernie – 38 sites) within,Resource Evaluation Area and several (Norbury Lake, Kikomun Creek) just outside the boundaries of the Resource Evaluation Area. Data provided by BC Parks indicate that there was an average of over 12,200 visitors per year to the Mt. Fernie campground over the 1998-2000 period (Most of these visitors are non-residents, i.e., tourists) and a total of 40,000 visitors annually to Norbury and Kikomun Creek Parks.Resource Evaluation Area Total use and capacity utilization in these 3 campgrounds is increasing over time, with utilization at 90% during the week and 100% on weekends during the peak summer season.

There are also several major provincial protected areas (Akimina-Kishinena in the southeast, Height of the Rockies and Elk Lakes to the north, and Top of the World to the northwest) just outside the Plan Area boundary, but within the Resource Evaluation Resource Evaluation Area. Attendance is relatively low in these "wilderness parks" because they are less accessible and facilities provided are minimal, in part to minimize impacts on wildlife. Visitors to the Waterton Lakes National Park have also increased significantly since 1995, although 95% of that use is from the Alberta side of the border.[52] A continuation of growing use in the more accessible parks in or adjacent to

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[49] BC Wildlife Branch, Guide Outfitter Reporting System, *Wildlife Harvest Summary by Species and Region*, for the period 1995-96 to 2000-01.

[50] Estimates for 1996 based on *BC Guide Outfitter Industry*, J. Paul & Associates, 1997 and data provided by Dale Drown, GOABC.

[51] *Commercial and Recreational Hunting and Fishing Focus Groups*, Meeting Minutes, op. cit. More detailed information on guided and recreation angling effort will be provided in a new study on freshwater fisheries in BC by J. Paul, but was not yet available upon completion of this report.

[52] Bill Dolan, Parks Canada.

the Resource Evaluation Area could lead to capacity constraints within those facilities, especially in the longer term.[53]

The *BC Visitor Study* indicated that national and provincial park campgrounds were the single most popular type of accommodation for non-resident visitors to the eastern Rockies, and 25% of these visitors stayed in parks in the Kootenay region. A number of commercial backcountry businesses also operate in parks, indicating the importance of parks to the tourism sector.[54]

There are 23 Ministry of Forests recreation sites providing camping and hiking opportunities throughout the Resource Evaluation Area. Data on usage trends is available but not considered reliable because of the voluntary nature of the data collection. MoF staff indicate that use of these recreation sites and trails has grown over the past decade. Several of these recreation sites are easily accessible to communities in the Elk Valley, but most of the sites are in the backcountry. The sites are all accessed by logging road, and 80% - 90% of the use is by residents of the Resource Evaluation Area.[55] As of March, 2004, MoF will no longer be managing these sites and in the meantime, will be seeking private and community groups to operate them.

A whole range of outdoor recreation activities, undertaken by residents and tourists, such as hiking, wildlife viewing, hunting and angling occur on Crown forest lands. Data on such dispersed recreation use are not readily available, but such use is likely far greater than occurs at recreation sites. Although quantitative data are not readily available, motorized recreation activities appear to be growing strongly, particularly snowmobilers from Alberta.[56]

Scenic Resources

The Plan Area is one of the most scenic areas in BC. As noted above, visual quality is important to visitors using front-country commercial facilities, potentially affecting frequency and duration of visits. The current management objective is to conserve the quality of views from communities, major waterways and major highway corridors (i.e., the Highway 3 corridor from Elko to the Alberta border, and the Highway 43 corridor from Elkford to Sparwood) in the Plan Area. The Kootenay Boundary Land Use Plan Implementation Strategy (KBLUP-IS), identifies these scenic areas and defines visual management guidelines for designing timber harvest, forest management and mineral exploration activity.

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[53] Pers. comm., Mike Gall, Ministry of Water, Land and Air Protection, and Bill Dolan, Parks Canada. BC Parks data for campground use in the larger Kootenay District indicate an increase in overnight (i.e., campground) use of about 18% over the 1991-2000 period, although use has declined from peak levels in 1995. Boating use at BC Parks in the District also increased by 43% over the 1991-2000 period, but has been on a downward trend since 1996. Day use in District Parks actually declined by 16% over the 1991-2000 period.

[54] For estimates of the economic impacts of provincial parks in BC see *Current and Future Economic Benefits of British Columbia Parks*, Coopers Lybrand Consulting, April, 1996.

[55] Pers. comm., Neil Shuttleworth, Ministry of Forests.

[56] *Commercial and Recreational Hunting and Fishing Focus Groups*, Meeting Minutes, op. cit.

Visually sensitive areas in the backcountry are not mapped or identified specifically, but are defined in relation to, and managed to protect viewscapes from facilities and features. These backcountry recreation guidelines, as defined in the KBLUP-Implementation Strategy, state that any logging within 200 metres of a defined campsite, cabin, lake or river[57] should be designed so that modification may be discernible but not clearly evident from the site. For tenured areas, resource development should show evidence of good visual design.[58]

4.3.2. Anticipated Trends

The Resource Evaluation Area's strong historical growth, its proximity to the Alberta and US borders, Fernie's growing stature as an international ski destination and increasing worldwide demand for quality outdoor recreation experiences, suggest continued growth in the tourism industry and related investment in related facilities and infrastructure. The amenities and lifestyle of the Resource Evaluation Area are becoming increasingly popular for buyers of recreation properties, particularly by Alberta residents.[59]

Reflecting these demands, there are several commercial backcountry proposals being considered by Land and Water BC (LWBC) (including snowmobile / ATV touring and trail rides), as well as larger scale proposed developments within, or just outside the Resource Evaluation Area. These proposals will generate additional jobs and income for Resource Evaluation Area residents. However, it is the larger, commercial investments, such as possible further expansion of facilities at Fernie Alpine Resort[60] and the proposed Rolling Hills golf course / residential development proposed by Sparwood, that would have the most significant implications for tourism growth and economic impacts in the Resource Evaluation Area.[61] Major investments just outside of the Resource Evaluation Area, including the proposed Ktunaxa Kinbasket Tribal Council / Delta Hotels resort development at St. Eugene Mission, and the proposed upgrading of the Cranbrook Airport to handle direct international flights, if they proceed, would act as a further catalyst to tourism growth in the Resource Evaluation Area.

Demand for outdoor recreation in the Plan Area by residents and tourists will continue to increase over time in concert with slower population growth. Guided and recreational sport fishing and hunting demand will likely continue to grow, subject to resource and government policy constraints. Due to fish and wildlife population limitations and other factors (e.g., the need to diversify markets, extend the length of the season, and spread the costs of fixed investments over a broader client base), the trend to non-consumptive activities observed historically will likely continue. The commercial and non-

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[57] Backcountry facilities and features to which visual guidelines apply are defined in KBLUP-IS, Section 3.9.2 Operational Guidelines, Table 1.2 Management Guidelines for Backcountry Recreation. p 56.

[58] See KBLUP-IS, Section 3.9.2, *Operational Guidelines* and Table 1.2 *Management Guidelines for Backcountry Recreation*, p. 59.

[59] Fernie Chamber of Commerce website: *www.chamber.fernie.bc.ca.*

[60] A recent joint proposal by Fernie Alpine Resort and Island Lake Resort Group for expansion of golf and other resort facilities is now being considered by LWBC. The proposal involves a swap of part of the Mt. Fernie provincial park for an equal sized parcel of old growth forest near Island Lake. See *Island Lake, FAR Proposal Identifies Possible Future Plans*, Fernie Free Press, April 18, 2002.

[61] Pers. comm., Herb Hess, LWBC.

commercial value of such experiences will likely continue to increase over time due to growing scarcity of wilderness experiences elsewhere. Growth in outdoor recreation activity in the Resource Evaluation Area may well be higher than the provincial average due to increasing demand pressure from Alberta.

Limited carrying capacity within existing parks suggests that future wilderness tourism growth in the Resource Evaluation Area will rely increasingly on access to Crown lands outside PAs. This will require more intensive management of backcountry resources and features, including protection of viewscapes, vulnerable fish and wildlife populations, and wilderness attributes that are highly valued by a segment of the tourism market and becoming increasingly scarce. A key issue will be to meet a growing demand from motorized users (resident and non-resident) that can negatively affect some types of recreation, existing guide-outfitter and other wilderness tourism businesses. Without more intensive management of backcountry Crown lands, the growth potential in wilderness tourism and in the longer term, perhaps even existing levels of demand, may be at risk. Concerns have also been expressed by existing operators that the decision-making process for new commercial tenures does not adequately take into account the potential negative effects on their existing businesses.[62]

Already, there is some commercial recreation activity that is occurring without approvals from licensing agencies like LWBC. LWBC will increase efforts to manage and enforce commercial recreation tenure and policy to reduce impacts on existing licensees, but is currently hampered by a lack of resources.[63] In the absence adequate resources, unlicensed uses and conflicts between recreation user groups on Crown lands will continue to grow.

As noted above, MoF will be divesting itself of recreation sites and trails by March, 2004. In the meantime, most of these facilities will be open for public use in but not actively managed. MoF will be making these sites available to local groups or commercial operators, some of them possibly under LWBC tenures. Greater involvement by commercial operators in provincial parks is also possible, for example, at Mt. Fernie Provincial Park. The implications of this devolution are not yet clear, although it is possible that more active management and marketing by community groups or private operators could increase utilization and related economic development opportunities than under direct government administration.

Timber harvesting and mineral and energy exploration in the Plan Area increases road access to the forest land base and to recreation opportunities, but can negatively affect fish and wildlife populations and the attributes that contribute to increasingly scarce wilderness experiences. The implementation of visual quality objectives, other netdowns (e.g., for riparian areas and old growth management areas), and access management / de-activation required by the current timber management regime and the KBLUP-IS mitigates such impacts. However, in the longer term, even with these constraints,

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[62] *Commercial and Recreational Hunting and Fishing Focus Groups for the SRMMP*, Meeting Minutes, op. cit.

[63] Pers. comm., Herb Hess, LWBC.

continued timber harvesting and potential mineral and energy development, if not appropriately managed, may cause further deterioration in scenic viewscapes and the resource values upon which wilderness recreation activities and related commercial interests are based.[64]

The extent of the timber harvesting land base (THLB) that is currently inoperable (i.e., is not commercially viable) will also limit the direct impacts of timber harvesting on recreation activity, at least in the shorter term. For example, less than 18% of the Plan Area is in the THLB. However, viewscape impacts extend beyond THLB boundaries and the lower elevation habitats are particularly critical in the life cycle of many species.[65] Also, as evidenced by historical trends, higher prices for wood fibre and products and new technology may expand the THLB, which in the longer term could exacerbate future resource conflicts and investment uncertainty for existing and potential commercial backcountry businesses.

4.4. AGRICULTURE / RANCHING

4.4.1. Current Activity and Historical Trends

As of 1996, total direct employment in agriculture in the Resource Evaluation Area communities was very limited at approximately 10 workers and accounted for a very small proportion of total employment and income. This is likely an underestimate of the sector's contribution because data on the rural portion of the Resource Evaluation Area is not available and because it is a supplementary rather than primary source of income.[66]

Most of the farming in the Resource Evaluation Area takes place within the Agricultural Land Reserve, almost all of which lies within private lands along the Elk River from Elko to Sparwood, and along the Upper Elk and Fording Rivers in the area south of Elkford. In addition, there are two small ALR areas close to the west boundary of the Resource Evaluation Area - one at the confluence of Lodgepole Creek and Wigwam River, and the second due north from the confluence, on Morrissey Creek.

Cattle ranching (primarily a cow-calf industry, with no finishing) is the most common form of agriculture in the Resource Evaluation Area, although there are some mixed farm operations. Access to Crown lands can be important for some agricultural operations. There are an estimated 5 ranchers grazing livestock on Crown lands in the Plan Area, and access to these lands is important to the viability of these operations.

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[64] See survey of public preferences regarding conditions considered acceptable for recreation use. Most respondents (62%) preferred an unaltered setting but would accept sites where modifications were not evident. *1994 Forest, Range and Recreation Resource Analysis*, op. cit.

[65] THLB estimate from *Southern Rocky Mountain Management Plan Background Report*, 2002. Such area statistics can be misleading. For example, while lower elevation / riparian areas may comprise only a small proportion of overall Grizzly habitat, these areas are critical to survival at certain times of the year.

[66] Data for CSD C (only partly inside the Resource Evaluation Area) indicates that direct employment in agriculture is about 150, comprising about 10% of total employment in that area. Labour force data also indicates that there has been significant employment growth in this sector in CSD C over the 1981-96 period.

Range values in the Plan area are low to moderate for livestock, and generally moderate to very high for wildlife, particularly ungulates. Currently, livestock use is excluded in some parts of the Plan Area to avoid conflicts with critical habitat and foraging areas (e.g., in the Flathead area). In addition to livestock grazing, ten guide-outfitters utilize range within the Plan Area and Resource Evaluation Area, for pasturing of relatively small numbers of horses. Access to Crown lands for this purpose is important to guide-outfitters and the relatively low intensity of use does not generally conflict with wildlife grazing or foraging needs.[67]

Forest in-growth, encouraged by wildfire suppression, has led to a gradual decline over the past 50 years in the amount of open range available, which has the effect of exacerbating livestock / wildlife forage conflicts. The west side of the Wigwam River, along the southwest boundary of the Plan Area, are fire-maintained ecosystems that have historically, and are currently managed to restore grasslands.

Access to water is another important issue for the agricultural sector. There are approximately 100 water licenses for irrigation purposes in the Plan Area, which lies within the Fernie Water District.

4.4.2. Anticipated Trends

Growth in ranching activity is likely to be modest, constrained by availability of range future trends and volatile North American market conditions. However, there is likely to be a continuing demand for agricultural property by Alberta and US residents drawn by lifestyle considerations and relatively attractive land prices. Based on experience elsewhere in the province, there could be some modest growth potential for higher value produce such as organic vegetables, and crops like herbs, flower salad items, and other specialty produce for local markets in the Resource Evaluation Area.

4.5. TRAPPING

4.5.1. Current Activity and Historical Trends

There are roughly 40 licensed trappers active in the Resource Evaluation Area, although it is a primary activity for very few, if any participants.[68] Provincially, the number of trappers in the province has declined significantly over the past decade, while the number of non-licensed trappers (primarily First Nations) has remained approximately constant.[69]

4.5.2. Anticipated Trends

Historically, many registered traplines have been negatively affected by resource development. If historical trends continue (e.g. increasing fragmentation of older forests upon which important trapped species such as fisher and marten depend, as well as decreasing dependence on trapping as a source of livelihood), a continued decline in the total number of trappers in the Resource Evaluation Area could be expected.

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[67] *Southern Rocky Mountain Management Plan Background Report*, 2002

[68] Stan Smith, pers. comm. Data for 1996 does indicate employment of 10 in fishing and trapping (residing in Sparwood), but it is not clear which of these sectors is the primary activity.

[69] Source: Ministry of Environment trapping statistics.

Concerns expressed by the trapping sector include:[70]

- Potential for negative effects of resource development on the viability and value of traplines, which are a form of commercial tenure
- Importance of access to traplines, particularly by ATVs and snowmobiles
- Protection of wildlife habitat important to furbearers such as riparian areas, old growth, wildlife trees and connectivity corridors
- Potential conflicts with back country recreation operations and settlement areas (carrying capacity and need for compensation in case of devaluation)

[70] Letter to Tom Volkers (Southern Rocky Mountain Management Plan) from Stan Smith, BC Trappers Association, April 1, 2002.

5. FIRST NATIONS

5.1. POPULATION AND TRADITIONAL TERRITORIES[71]

The Plan Area is in the traditional territory of the Ktunaxa Kinbasket First Nation. The Ktunaxa Nation consists of several communities in south eastern British Columbia, northern Idaho and north western Montana. The Ktunaxa traditionally followed "a nomadic seasonal subsistence year round determined by the location and timing of abundance of a broad range of animal and plant resources".[72] The Ktunaxa travelled extensively throughout the Wigwam, Elk and Flathead valleys, hunting, trapping, fishing and harvesting plants. They also travelled outside southeastern BC, crossing the Continental Divide to hunt bison on the prairies.

There are now seven bands in the Ktunaxa traditional territory - five in British Columbia and two in the United States. The Ktunaxa Kinbasket Tribal Council (KKTC) acts on behalf of the five BC bands, including: Lower Kootenay, St. Mary's, Shuswap, Columbia Lake, and Tobacco Plains.

None of these bands have communities within the Plan or Resource Evaluation Area. The Tobacco Plains reserve just east of Lake Koocanusa, is the nearest band in the Ktunaxa Kinbasket Tribal Council to the Resource Evaluation Area. Current population on this reserve, established in 1884, is estimated at about 100, including those in the non-status (i.e., off-reserve) category. There are also other bands within the Ktunaxa First Nation whose traditional territory includes the Resource Evaluation Area, but whose reserves lie outside the Resource Evaluation Area.

There is archaeological and other evidence of First Nations inhabitation in the Plan Area since the last glaciation over 10,000 years ago. There are a number of First Nations archaeological sites throughout the Plan Area, particularly between Sparwood and Elkford. Archaeological sites represent only those activities which have left a footprint on the landscape such as campsites or aboriginal mining. Traditional uses such as hunting, berry picking and travel routes may not be evident on the land, however are known through oral history. Traditional use studies of the Ktunaxa territory in the Plan Area are ongoing.

The most important private sector employers for the Tobacco Plains band include a small sawmill, garage, restaurant / gas bar and duty free store.[73] Economic dependency data based on the 1996 Census, while somewhat dated and subject to error due to the relatively small sample size, indicates that 47% of First Nations employment is in the public sector (primarily band administration, school, firehall and band hall). The economic dependency data also indicates that employment is more heavily concentrated in forestry, tourism and construction than in the Resource Evaluation Area as a whole.

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[71] This section relies heavily on the *SRMMP Background Report*, 2002.

[72] *Southern Rocky Mountain Management Plan (SRMMP) Background Report*, 2002

[73] *Cranbrook Timber Supply Area Socio-Economic Analysis*, Pierce Lefebvre Consulting, March, 1995 and pers. comm. with Rosemary Nicholas, Ktunaxa Tribal Council and

Although there can be considerable variation among First Nations, they generally have higher unemployment rates than average in B.C. It is estimated that the unemployment rate on the Tobacco Plains reserve is presently about 40% compared to a current unemployment rate in BC of about 9%.[74] First Nations unemployment may be underestimated because of very low labour force participation. First Nations also tend to have higher rates of poverty and substandard housing, health and education services.

The Ktunaxa Kinbasket Tribal Council and member bands all have active economic development programs. Tourism has been identified as a significant economic opportunity. An important focus of all of the Bands in the Tribal Council is a major new resort complex, including hotel, casino and golf course, at St. Eugene Mission, north of Cranbrook. The KKTC has a management agreement with Delta Hotels that will provide connections to major tourism markets world wide, and offer training and employment opportunities. This project will provide a major economic stimulus for the Ktunaxa people and for the southern Rockies area.

The KKTC has generally indicated support of environmentally-sensitive timber harvesting. Many aboriginal communities see acquisition of forest tenures as essential to economic growth. Currently, the Ktunaxa do not have any timber tenures Small Business sales within the Plan Area, but undertake some silviculture work for the major licensees. The KKTC is also hoping to negotiate logging contracts with these companies, but lack of capital and technical skills are significant impediments to making such arrangements.[75]

First Nations have expressed concern that they do not receive an equitable share of forest industry employment in the area. Other concerns include:

- The impact of logging on fish and wildlife.
- The need to integrate timber harvesting with other sectors such as tourism, trapping, hunting, fishing and other traditional, spiritual and commercial uses.
- The need to preserve archaeological and cultural sites.

They have also expressed concerns that prolonged treaty negotiations will pre-empt resource-related economic opportunities. A traditional use survey based on oral presentations regarding lands used historically, as well as a number of overview assessments to identify sites of potential archaeological evidence, have been carried out.

5.2. TREATY NEGOTIATIONS

The existence of aboriginal rights was recognized and affirmed in Section 35(1) of the Constitution Act, 1982. Recent court decisions continue to clarify the nature of aboriginal rights. The Supreme Court of Canada's recent Delgamuukw decision affirmed the

[74] Sources: pers. comm. with Rosemary Nicholas, Ktunaxa Tribal Council and Statistics Canada, Labour Force Survey, February, 2002.

[75] Rosemary Nicholas and Peter Levy, op. cit.

existence of aboriginal title and put the burden of proof on First Nations. The Ktunaxa First Nation traditional area lies in the Kootenay region. The SRMMP is not prejudicial to the treaty-making process.

While there has been some dissatisfaction with the Treaty process, the Ktunaxa Nation is currently negotiating an Agreement in Principle (Stage 4 of the Treaty process). Treaty negotiations represent an important longer term opportunity to address economic and self-government goals of First Nations.

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APPENDIX 1. CRANBROOK FOREST DISTRICT BILLING HISTORY

Volume Billed - m3	Forest License	Woodlot	License to Cut	TFL & Other	Total Administered	Small Business	Total Crown	Private Land & I.R.	Grand Total
1990	853,746	1,236	23,284	46,704	924,970	54,027	978,997	404,322	1,383,319
1991	875,163	9,674	55,760	40,520	981,117	117,432	1,098,549	266,818	1,365,367
1992	724,637	6,207	17,050	20,129	768,023	165,761	933,784	231,183	1,164,967
1993	755,232	3,615	43,808	22,699	825,354	134,803	960,157	308,324	1,268,481
1994	577,940	6,367	24,359	22,568	631,234	95,705	726,939	339,940	1,066,879
1995	739,073	1,917	37,531	958	779,479	105,289	884,768	295,236	1,180,004
1996	869,397	7,643	83,064	78,942	1,039,046	105,613	1,144,659	276,079	1,420,738
1997	698,257	6,708	9,884	79,857	794,706	75,534	870,240	268,858	1,139,098
1998	658,547	14,208	48,124	78,698	799,577	50,421	849,998	178,826	1,028,824
1999	685,757	18,102	12,853	77,602	794,314	125,404	919,718	195,321	1,115,039
2000	900,193	33,358	19,317	94,014	1,046,882	134,657	1,181,539	295,053	1,476,592
2001	774,556	31,521	13,833	71,020	890,930	108,733	999,663	252,786	1,252,449
Average 90 - 01	759,375					106,115	962,418		
Average 95 -01	760,826	16,208	32,087	68,727	877,848	100,807	978,655	251,737	1,230,392

Value Billed	Forest License	Woodlot	License to Cut	TFL & Other	Total Administered	Small Business	Total Crown	Private Land & I.R.	Grand Total
1990	$6,171,196	$522	$116,864	$261,713	$6,550,295	$434,933	$6,985,228		$6,985,228
1991	$3,947,847	$3,219	$238,351	$221,735	$4,411,152	$855,548	$5,266,700		$5,266,700
1992	$3,482,185	$9,284	$111,023	$12,468	$3,614,960	$1,365,907	$4,980,867		$4,980,867
1993	$5,467,323	$15,583	$470,721	$51,519	$6,005,146	$1,664,057	$7,669,203		$7,669,203
1994	$8,877,028	$96,110	$427,435	$301,308	$9,701,881	$2,474,957	$12,176,838		$12,176,838
1995	$12,836,467	$36,077	$905,800	$33,577	$13,811,921	$3,517,868	$17,329,789		$17,329,789
1996	$16,357,480	$34,745	$1,510,615	$1,969,478	$19,872,318	$3,637,224	$23,509,542		$23,509,542
1997	$12,406,535	$33,511	$211,754	$1,669,683	$14,321,483	$2,790,715	$17,112,198		$17,112,198
1998	$4,596,379	$162,321	$465,965	$1,126,986	$6,351,651	$1,133,065	$7,484,716		$7,484,716
1999	$8,914,438	$45,183	$216,664	$1,081,592	$10,257,877	$2,601,667	$12,859,544		$12,859,544
2000	$13,946,567	$195,345	$442,665	$1,436,499	$16,021,076	$2,875,291	$18,896,367		$18,896,367
2001	$11,825,903	$209,494	$226,499	$1,247,079	$13,508,975	$2,930,616	$16,439,591		$16,439,591
Average 95 -01	$11,554,824	$102,382	$568,566	$1,223,556	$13,449,329	$2,783,778	$16,233,107		$16,233,107

Average Value Billed - $ per m3	Forest License	Woodlot	License to Cut	TFL & Other	Total Administered	Small Business	Total Crown	Private Land & I.R.	Grand Total
1990	$7.23	$0.42	$5.02	$5.60	$7.08	$8.05	$7.14		$7.14
1991	$4.51	$0.33	$4.27	$5.47	$4.50	$7.29	$4.79		$4.79
1992	$4.81	$1.50	$6.51	$0.62	$4.71	$8.24	$5.33		$5.33
1993	$7.24	$4.31	$10.75	$2.27	$7.28	$12.34	$7.99		$7.99
1994	$15.36	$15.10	$17.55	$13.35	$15.37	$25.86	$16.75		$16.75
1995	$17.37	$18.82	$24.13	$35.05	$17.72	$33.41	$19.59		$19.59
1996	$18.81	$4.55	$18.19	$24.95	$19.13	$34.44	$20.54		$20.54
1997	$17.77	$5.00	$21.42	$20.91	$18.02	$36.95	$19.66		$19.66
1998	$6.98	$11.42	$9.68	$14.32	$7.94	$22.47	$8.81		$8.81
1999	$13.00	$2.50	$16.86	$13.94	$12.91	$20.75	$13.98		$13.98
2000	$15.49	$5.86	$22.92	$15.28	$15.30	$21.35	$15.99		$15.99
2001	$15.27	$6.65	$16.37	$17.56	$15.16	$26.95	$16.45		$16.45
Average 95 -01	$14.96	$7.83	$18.51	$20.29	$15.17	$28.05	$16.43	$0.00	$16.43

Source: B.C. Ministry of Forests Revenue Branch

Note: Totals exclude Deciduous, Waste (A), Waste (U) and Reject/Z category wood.

APPENDIX 2. FOREST INDUSTRY IMPACTS

APPENDIX 2-1 FOREST PRODUCT PROCESSING FACILITIES IN OR NEAR RESOURCE EVALUATION AREA

	TSR1 - 1993			TSR2 - 1998			April 2002			
Primary Processing	Log Input (000 m3)	Employment (PYs)	PYs/000 m3	Capacity (000 m3)	Employment (PYs)	PYs/000 m3	Log Input (000 m3)	Employment (PYs)	Allocated PYs (1)	PYs/000 m3
Tembec Cranbrook (2)	378	200	0.529	575	294 to 398			75		
Tembec Elko (3)	628	212	0.338				910	223	293	0.322
Tembec Head Office (4)		104						80		
Galloway Lumber (5)	248	105	0.423	210	81 to 88		210	89	89	0.423
Smaller Operations	104	150	1.44		84 to 89		98.5	80	80	0.812
Total	1,358	771	0.57		459 to 575	0.42	1,219	547	462	0.379
Secondary Processing	BDU									
Tembec Pulp Mill: Skookumchuck (6)	328,192	355	0.14			0.12		375		0.14
Tembec Value-Added: Cranbrook (7)								37	37	0.03
Total		1,126	0.71			0.54		959		

Notes:

1. Allocated PYs represent the primary wood processing employment that depends on timber harvested in the SRM Plan Area.
2. Tembec employment reported for TSR-2 (1998) includes data for the Cranbrook and Elko mills.
3. April 2002 Employment related to the Elko operation includes 223 PYs at the Elko mill, 39 PYs at the planer mill in Cranbrook that are attributed to the Elko production (52% of 75 PYs at the planer mill), and 31 PYs head office employees (half of 63 PYs at the Cranbrook Head Office net of the 17 PYs in woodlands).
4. Since 1993, approximately 20 Tembec head office employees were moved from the Cranbrook office to Skookumchuck.
5. The employment in 1993 represents all company employees excluding 3 woodlands staff, and excluding all logging and silviculture related contractors. Comparable employment for Galloway is not available in TSR-2 since harvesting employment data also include administration employment. The April 2002 data are based on discussions with Galloway and the 1993 data.
6. The pulp and paper coefficient in 1993 assumed that 35.2% of the wood consumed at the pulp mill in Skookumchuck originated from the TSA, which resulted in a coefficient of 0.14 PYs per 000 m3 of wood for pulp processing impacts (35.2% of 355 PYs divided by 896,136 m3 of wood harvested). The employment coefficient was assumed to be the same as in 1993 since detailed data are not readily available and discussions with Tembec suggest that the mill has not been altered since 1993 (except for a co-generation plant).
7. The Tembec value-added plant shutdown in November 2001 but plans to re-open after some additional capital investment.

Source:

Pierce Lefebvre Consulting, Cranbrook Timber Supply Area Socio-Economic Analysis, prepared for the Ministry of Forests, 1995.
Estimated Output Capacity: B.C. Ministry of Forests, Major Primary Processing Facilities in British Columbia, 2000;
Estimated Log Input Capacity: B.C. Ministry of Forests, Timber Supply Review, Cranbrook Timber Supply Area Analysis Report, 1999.
Estimated Log Input and Employment: above documents and discussions with licensees and with Ministry of Forest representatives in Cranbrook.

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APPENDIX 2-2 RESOURCE EVALUATION AREA AND PLAN AREA CONTRIBUTIONS TO PROCESSORS' LOG INPUTS

	Cranbrook TSA	Resource Evaluation Area	Plan Area
Total Land Area (ha)	1,483,083	754,463	440,614
Timber Harvesting Land Base (ha)	407,058	114,593	78,179
Share of THLB	100%	28%	19%
Cranbrook TSA AAC (m3)	871,000		
Implied AAC Contribution (m3)	871,000	245,200	167,283
Private and Federal Lands (ha)	228,764	149,679	68,386
Share of Private and Federal	100%	65%	30%
Average Private and Federal Harvest (m3)	252,000		
Implied Share of Private Harvest (m3)[1]	252,000	164,882	75,332
Total Crown AAC and Private Harvest (m3)	1,123,000	410,082	242,615
Total Primary Processor Logs Input (m3)	1,219,000		
Implied Source of Logs Input			
Provincial Crown	71%	20%	14%
Private and Federal	21%	14%	6%
Total	92%	34%	20%

Note:
Prorating the annual private land timber harvest based on the share of private lands in the Resource Evaluation Area (REA) and Plan Area is questionable, since more of the private lands in the REA are Managed Forest Lands, compared to the Cranbrook Forest District as a whole. Direct estimates by industry participants, however, yield a similar result of about 165,000 m3 per annum for the REA.

Source:
Land Areas: Cranbrook Forest District PCRS Reports by Landscape Unit.
AAC and Harvest: B.C. Ministry of Forests.
Primary Processor Logs Input: As per Appendix 2-1.

APPENDIX 2-3 EMPLOYMENT COEFFICIENTS

Provincial Impacts by Sector (1)	TSR1 - 1993	TSR2 - 1998	April 2002	2002 - with Value-Added Plant
Timber Harvesting (2)	0.30	0.36	0.36	0.36
Silviculture (2)	0.07	0.05	0.05	0.05
Wood Processing (3)	0.57	0.42	0.38	0.41
Pulp & Paper Processing (3)	0.14	0.12	0.14	0.14
Total Direct Employment	1.08	0.95	0.93	0.96
Indirect & Induced				
Regional	0.625	0.43	0.49	0.54
Outside Region, within B.C.	0.80	0.48	0.68	0.70
Sub-total Indirect & Induced	1.425	0.91	1.17	1.24
Total Direct & Indirect Employment (4)	2.506	1.86	2.10	2.20

Notes:

1. TSR-1 and TSR-2 differentiated between the TSA and Provincial impacts. Most direct impacts are inside or near the Cranbrook TSA and as a result, this report does not differentiate between the region and the provincial impacts.
2. The timber harvesting and silviculture coefficients increased overall between 1993 and 1998 partly as a result of the Forest Practices Code. The current coefficients for timber harvesting and silviculture are assumed to have remained at the 1998 level.
3. The current wood processing and pulp and paper coefficients are based on current processing activity as described in the following table.

The employment multipliers depend on various assumptions made regarding the impacts a loss of employment might have on other economic sectors and whether or not the workers who lose their jobs will leave the region (migration ratios) or remain in the area (no migration ratios). For the purpose of this study (April 2002), the multipliers assume the migration scenario. This will overstate slightly the loss of employment that would occur in the first one or two years following the loss of jobs as workers would likely remain in the area at least until they no longer collect Unemployment Insurance and until they have secured employment elsewhere. The TSR-2 (1998) study used a mix of no-migration and migration multipliers.

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APPENDIX 2-4 FOREST INDUSTRY IMPACTS OF CROWN LAND AAC

	April 2002 - Cranbrook TSA (Excl. Value-Added Plant)				SRM Resource Evaluation Area (Excl. Private Land)			SRM Plan Area		
Provincial Impacts by Sector	Coefficient	Total PYs	Empl. Income ($million)	B.C. Employee Inc. Taxes	Total PYs	Empl. Income ($million)	B.C. Employee Inc. Taxes	Total PYs	Empl. Income ($million)	B.C. Employee Inc. Taxes
Direct (All in Cranbrook Region)										
Timber Harvesting	0.36	313.6	$14.3	$1.2	88.3	$4.0	$0.3	60.2	$2.7	$0.2
Silviculture	0.05	43.6	$2.0	$0.2	12.3	$0.6	$0.0	8.4	$0.4	$0.0
Wood Processing	0.38	330.2	$14.8	$1.2	93.0	$4.2	$0.3	63.4	$2.8	$0.2
Pulp & Paper Processing	0.14	121.9	$6.4	$0.5	34.3	$1.8	$0.1	23.4	$1.2	$0.1
Total Direct	0.93	809.2	$37.5	$3.1	227.8	$10.5	$0.9	155.4	$7.2	$0.6
Indirect & Induced										
Regional	0.49	427.2	$14.6	$1.2	120.3	$4.1	$0.3	82.0	$2.8	$0.2
Outside Region, within B.C.	0.68	590.4	$20.1	$1.7	166.2	$5.7	$0.5	113.4	$3.9	$0.3
Sub-total Indirect & Induced	1.17	1,017.6	$34.7	$2.9	286.5	$9.8	$0.8	195.4	$6.7	$0.6
Total B.C. Impacts	2.10	1,826.8	$72.1	$6.0	514.3	$20.3	$1.7	350.9	$13.9	$1.2
Cranbrook Regional Impacts - Direct, Indirect and Induced	1.42	1,236.43	$52.0	$4.3	348.07	14.65	1.22	237.47	9.99	0.83
Provincial Government Revenues	$ per m3		Total Revenues ($ million)			Total Revenues ($ million)			Total Revenues ($ million)	
Stumpage and Related Payments	$16.45per m3		$14.33million			$4.03million			$2.75million	
Forest Industry Taxes	$8.12per m3		$7.07million			$1.99million			$1.36million	
Employee Income Taxes	$6.90per m3		$6.01million			$1.69million			$1.15million	
Total Provincial Gov.t Revenues	$31.47per m3		$27.41million			$7.72million			$5.26million	
Timber Harvesting Land Base and AAC				% of Total			% of Total			% of Total
Timber Harvesting Land Base	407,058hectares			100.0%	114,593Hectares		28.2%	78,179hectares		19.2%
AAC	871,000m3									

Notes: Does not add due to rounding.

1. The average annual pre-tax incomes are based on 1998 Statistics Canada data as reported in TSR-2 Cranbrook TSA Analysis Report; represents weighted average annual pre-tax income less benefits for forest sector and other workers; tax rate assumptions are also from that report and as a result are based on 1998 tax rates.

Average Annual Pre-Tax Incomes		Assumed Tax Rate	Provincial (1/3)
Logging and Forestry Services:	$45,550	25%	8.3%
Solid Wood Manufacturing:	$44,915	25%	8.3%
Pulp and Paper Mills:	$52,250	27%	9.0%
Indirect and Induced:	$34,075	23%	7.7%

2. The stumpage rate is based on the 2001 stumpage for the Cranbrook Forest District of $16.45 per m3. This is also equal to the average stumpage revenue by m3 for the years 1995 to 2001 ($16.43).

3. Other forest industry taxes are based on estimates by PriceWaterhouseCoopers for 1998 as reported in the TSR-2 report; other forest industry taxes include taxes for logging, corporate income, corporate capital, sales, property and electricity.

APPENDIX 3. CHARACTERISTICS OF THE TIMBER HARVESTING LAND BASE

	Cranbrook F.D.[1]		Resource Evaluation Area[2]		Plan Area[2]	
	Hectares	% of Total	Hectares	% of Total	Hectares	% of Total
Total Area	1,483,083	100.0%	754,797	100.0%	446,381	100.0%
Private and Federal Land	228,764	15.4%	151,462	20.1%	70,131	15.7%
Current THLB	439,190	29.6%	123,495	16.4%	85,298	19.1%
	Hectares	% of THLB	Hectares	% of THLB	Hectares	% of THLB
Elevation Over 1800 Meters	35,448	8.1%	14,226	11.5%	6,969	8.2%
Immature Forest Stands		71%	93,192	75.5%	64,437	75.5%
Scenic Corridors			7,496	6.1%	7,397	8.7%
VQOs Retention	2,785	0.6%				
Partial Retention	24,367	5.5%				
Modification	9,303	2.1%				
Sub-Total	36,455	8.3%				
Recreation						
Highest	3,282	0.7%				
High	8,155	1.9%				
Moderate	116,326	26.5%				
Sub-Total	127,763	29.1%				
Community Watersheds	24,353	5.5%	1,064	0.9%	1,064	1.2%
Domestic Watersheds	52,376	11.9%	2,203	1.8%	2,122	2.5%
Caribou Habitat	36,076	8.2%	0	0.0%	0	0.0%
Ungulate Winter Range						
Type 1	47,564	10.8%				
Type 2	23,691	5.4%				
Type 3	31,982	7.3%				
Type 4	4,088	0.9%				
Sub-Total	107,325	24.4%	39,635	32.1%	32,484	38.1%
FMER						
Managed Forest	36,441	8.3%				
Open Forest	39,361	9.0%				
Open Range	19,692	4.5%				
	95,494	21.7%				
Connectivity Corridors	Not Modeled		72,904	59.0%	56,021	65.7%
Biodiversity Emphasis Options (THLB)						
High		9.9%	13,490	10.9%	13,490	15.8%
Intermediate		44.5%	106,422	86.2%	70,111	82.3%
Low		45.6%	3,584	2.9%	1,696	2.0%
Total		100.0%	123,496	100.0%	85,298	100.0%

Notes:

1. Source: Cranbrook Timber Supply Area Analysis Report, Timber Supply Review, December 1999, B.C. MoF
2. Source: Southern Rocky Mountains Management Plan, GIS data, MSRM, 2002.

APPENDIX 4. MINING INDUSTRY IMPACTS

	Impacts from Mining Industry in Resource Evaluation Area			
Provincial Impacts by Sector	Multiplier	Total PYs	Total Income ($million)	B.C. Employee Inc Taxes
Direct (All in Resource Evaluation Area)				
Coal Mining		2,563.0	$169.9	$17.0
Exploration		50.0	$2.5	$0.2
Total Direct	1.00	2,613.0	$172.4	$17.2
Indirect & Induced				
Regional	0.61	1,593.9	$54.3	$4.2
Outside Region, within B.C.	0.69	1,803.0	$61.4	$4.7
Sub-total Indirect & Induced	1.30	3,396.9	$115.7	$8.9
Total B.C. Impacts	2.30	6,009.9	$288.2	$26.1
Resource Evaluation Area Impacts – Direct, Indirect and Induced	1.61	4,206.93	$226.7	$21.4
Government Revenues			Total Revenues ($ million)	
Mining Industry Taxes (includes provincial and municipal taxes)			$38.6million	
Employee Income Taxes			$26.08million	
Total Gov.t Revenues			$64.72million	

Notes: Does not add due to rounding.

1. The 2001 employment is from Ministry of Energy and Mines. MEM reports employment in coal mining in the Kootenays at 2,338 PYs for 2000 and 2,563 PYs for 2001. By comparison, PriceWaterhouseCoopers reports employment of 2,172 PYs for 2000.
2. The average annual pre-tax income for mining employees are based on the PriceWaterhouseCoopers 2000 report on the Mining Industry in British Columbia and they exclude benefits of $11,500 per employee. The exploration averages are set at $50,000 to reflect the lower wages in that sector. The indirect and induced wages and benefits are based on the Statistics Canada data and are the same as those used for the forest sector.

		Assumed	Provincial
Average Annual Pre-Tax Incomes		Tax Rate	(1/3)
Mining Employees	$66,300	30%	10.0%
Exploration	$50,000	26%	8.7%
Indirect and Induced:	$34,075	23%	7.7%

3. The employment multiplier for the region represents the Fernie employment ratio (migration) from B.C. Stats, B.C. Local Area Economic Dependencies and Impact Ratios - 1996. The multiplier of 2.3 for the province mining industry (1.3 indirect and induced jobs per direct job) is comparable to the multiplier used for wood processing in the forest impact analysis.
4. Similar assumptions as were used in the forestry analysis are used in this table.
5. The mining industry taxes are based on the 2000 direct tax payments to the provincial and municipal governments from mining of $151 million (includes the mining tax, mineral tax, provincial sales taxes, income, property, school and other taxes). Some 25.6% of these are allocated to the Kootenay coal industry based on net mining revenues for coal accounting for 29.4% of total net mining revenues in 2000 for B.C. and on the Kootenays accounting for 87% of all coal production in the province. Source: PriceWaterhouseCoopers, The Mining Industry in British Columbia, 2000.

APPENDIX 5. RESOURCE EVALUATION AREA MINING AND ENERGY GIS DATA

The B.C. Ministry of Energy and Mines has developed extensive geological maps of B.C. using a Geographic Information System (GIS) that maps mineral occurrences, mineral tenures and mineral potential for all of B.C. This Appendix summarizes the GIS data for the Resource Evaluation Area.

Mineral Occurrences	Coal			Mineral		
	Private	Crown & Other	Total	Private	Crown & Other	Total
Anomaly	1	11	12	0	0	0
Developed Prospect	0	2	2	0	1	1
Past Producer	0	4	4	0	0	0
Producer	0	5	5	1	1	2
Prospect	0	1	1	1	23	24
Sub-Total	1	23	24	2	25	27

Note: The project team could not identify the two producing mineral deposits shown by the GIS data and they may be past producers or data anomalies.

Coal and Mineral Tenures	Private	Crown & Other	Total
Total Hectares	151,462	603,335	754,797
Coal Tenures	3,448	48,515	51,963
Mineral Tenures	3,802	45,665	49,466
% of Total Area	100%	100%	100%
Coal Tenures	2%	8%	7%
Mineral Tenures	3%	8%	7%

Mineral Potential (hectares)	Metals			Industrial Minerals		
	Private	Crown & Other	Total	Private	Crown & Other	Total
0 (No values)	123,518	123,411	246,929	67,883	68,598	136,480
1 (Rank 1-88)	11	570	580			
2 (Rank 89-177)	98	24,421	24,519			
3 (Rank 178-266)	0	0	0			
4 (Rank 267-355)	9,284	199,076	208,360			
5 (Rank 356-445)	15,322	2,816	18,138	6	21,462	21,469
6 (Rank 446-534)	660	65,816	66,477	1,661	100,059	101,720
7 (Rank 535-623)	2,570	187,224	189,794	55,573	295,649	351,223
8 (Rank 624-712)	0	0	0	26,327	32,638	58,965
9 (713-794)	0	0	0	11	84,929	84,941
Sub-Total	151,462	603,335	754,797	151,462	603,335	754,797

Mineral Potential	Metals			Industrial Minerals		
(proportion of land base)	Private	Crown & Other	Total	Private	Crown & Other	Total
0 (No values)	82%	20%	33%	45%	11%	18%
1 (Rank 1-88)	0%	0%	0%	0%	0%	0%
2 (Rank 89-177)	0%	4%	3%	0%	0%	0%
3 (Rank 178-266)	0%	0%	0%	0%	0%	0%
4 (Rank 267-355)	6%	33%	28%	0%	0%	0%
5 (Rank 356-445)	10%	0%	2%	0%	4%	3%
6 (Rank 446-534)	0%	11%	9%	1%	17%	13%
7 (Rank 535-623)	2%	31%	25%	37%	49%	47%
8 (Rank 624-712)	0%	0%	0%	17%	5%	8%
9 (713-794)	0%	0%	0%	0%	14%	11%
Sub-Total	100%	100%	100%	100%	100%	100%

Coal Bed Methane	**Private**	**Crown & Other**	**Total**
Total Hectares	151,462	603,335	754,797
Coal Bed Methane Potential	37,888	30,463	68,351
% of Total Area	100%	100%	100%
Coal Bed Methane Potential	25%	5%	9%

Petroleum and Gas Tenures	**Private**	**Crown & Other**	**Total**
Total Hectares	151,462	603,335	754,797
Drilling License	7,787	31,989	39,776
Permit Class B	1,365	3,283	4,648
Petroleum and Gas Leases	7	16,212	16,219
Sub-Total	9,160	51,484	60,643
% of Total Area	100%	100%	100%
Drilling License	5%	5%	5%
Permit Class B	1%	1%	1%
Petroleum and Gas Leases	0%	3%	2%
Sub-Total	6%	9%	8%

Source: B.C. Ministry of Energy and Mines data as reported by MSRM.

APPENDIX 6. ARIS EXPLORATION EXPENDITURES

	Plan Area		East Kootenay		%
	Current Dollars	1986 Dollars	Current Dollars	1986 Dollars	
1970	24,900	80,323	71,897	231,926	35%
1971	28,600	89,655	136,296	427,260	21%
1972	16,400	49,102	56,084	167,916	29%
1973	15,000	41,667	116,600	323,889	13%
1974	12,800	32,080	118,600	297,243	11%
1975	53,500	121,041	392,400	887,783	14%
1976	213,300	449,053	523,041	1,101,139	41%
1977	27,526	53,658	648,733	1,264,586	4%
1978	81,096	145,074	1,047,387	1,873,679	8%
1979	115,186	188,830	1,371,626	2,248,567	8%
1980	48,333	71,924	1,061,081	1,578,989	5%
1981	928,104	1,229,277	2,879,975	3,814,536	32%
1982	25,466	30,425	863,513	1,031,676	3%
1983	12,619	14,259	868,650	981,525	1%
1984	8,277	8,958	921,902	997,729	1%
1985	42,347	44,111	1,076,963	1,121,836	4%
1986	60,691	60,691	2,422,358	2,422,358	3%
1987	711,796	681,797	2,897,269	2,775,162	25%
1988	270,419	249,004	2,989,988	2,753,212	9%
1989	347,588	304,901	1,752,070	1,536,904	20%
1990	92,100	77,071	3,774,489	3,158,568	2%
1991	20,000	15,848	1,895,929	1,502,321	1%
1992	15,512	12,109	1,386,777	1,082,574	1%
1993	136,089	104,363	970,632	744,350	14%
1994	252,954	193,538	1,287,201	984,851	20%
1995	314,081	235,267	1,706,998	1,278,650	18%
1996			1,708,907	1,260,256	0%
1997	400,832	292,365	2,459,631	1,794,042	16%
1998	346,356	248,998	2,301,479	1,654,550	15%
1999	81,835	57,793	2,995,076	2,115,167	3%
2000	193,510	133,088	3,047,367	2,095,851	6%
2001	25,792	17,666	933,678	639,505	3%
Total 1970-2001	4,923,009	5,333,934	46,684,595	46,148,600	11%

Notes:

1. Includes only mineral exploration (excludes coal)
2. Includes only what is reported on the Claim Assessment Reports; does not include all company exploration expenditures.

Source: B.C. Ministry of Energy and Mines.